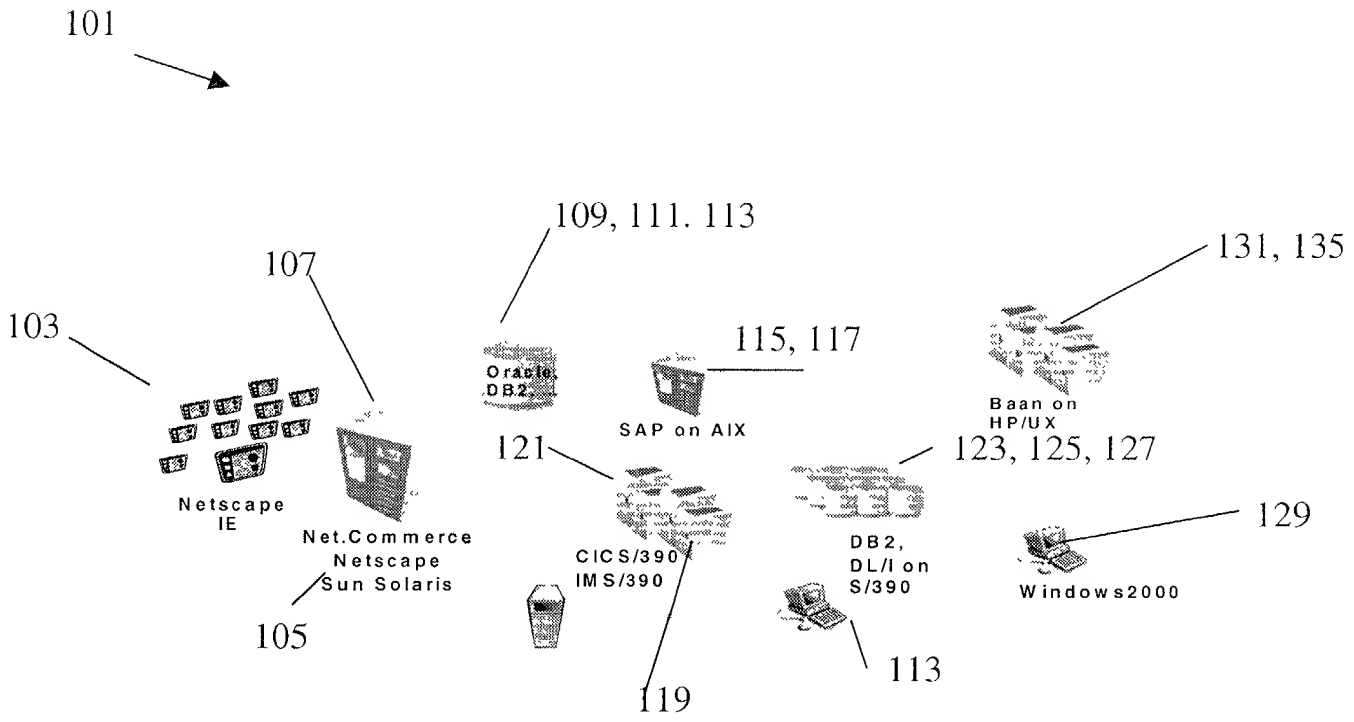
101
103
107
109, 111. 113
115, 117
131, 135
121
123, 125, 127
129
105
113
119
Netscape
IE
Net.Commerce
Netscape
Sun Solaris
Oracle,
DB2
SAP on AIX
Baan on
HP/UX
CICS/390
IMS/390
DB2,
DL/I on
S/390
Windows2000

Figure1

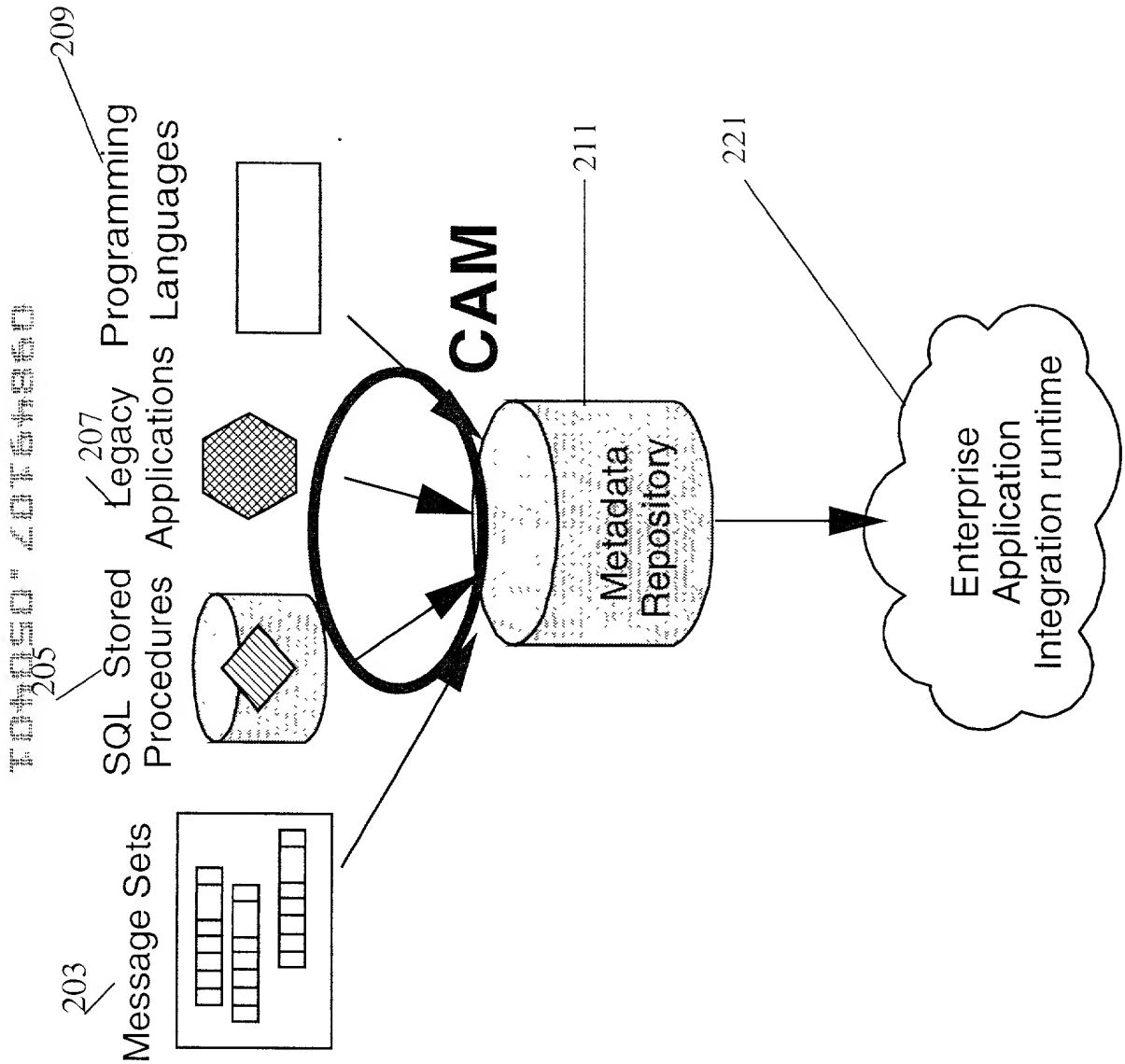
203
Message Sets
205
SQL Stored Procedures
207
Legacy Applications
209
Programming Languages
CAM
211
Metadata Repository
221
Enterprise Application Integration runtime

Figure 2

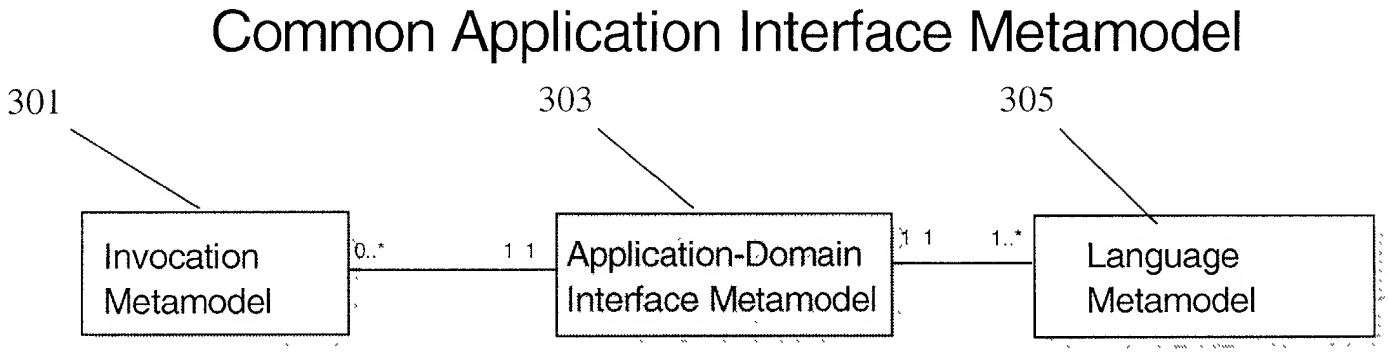
Common Application Interface Metamodel
301
303
305
Invocation Metamodel
0..*
1 1
Application-Domain Interface Metamodel
1 1
1..*
Language Metamodel

Figure 3

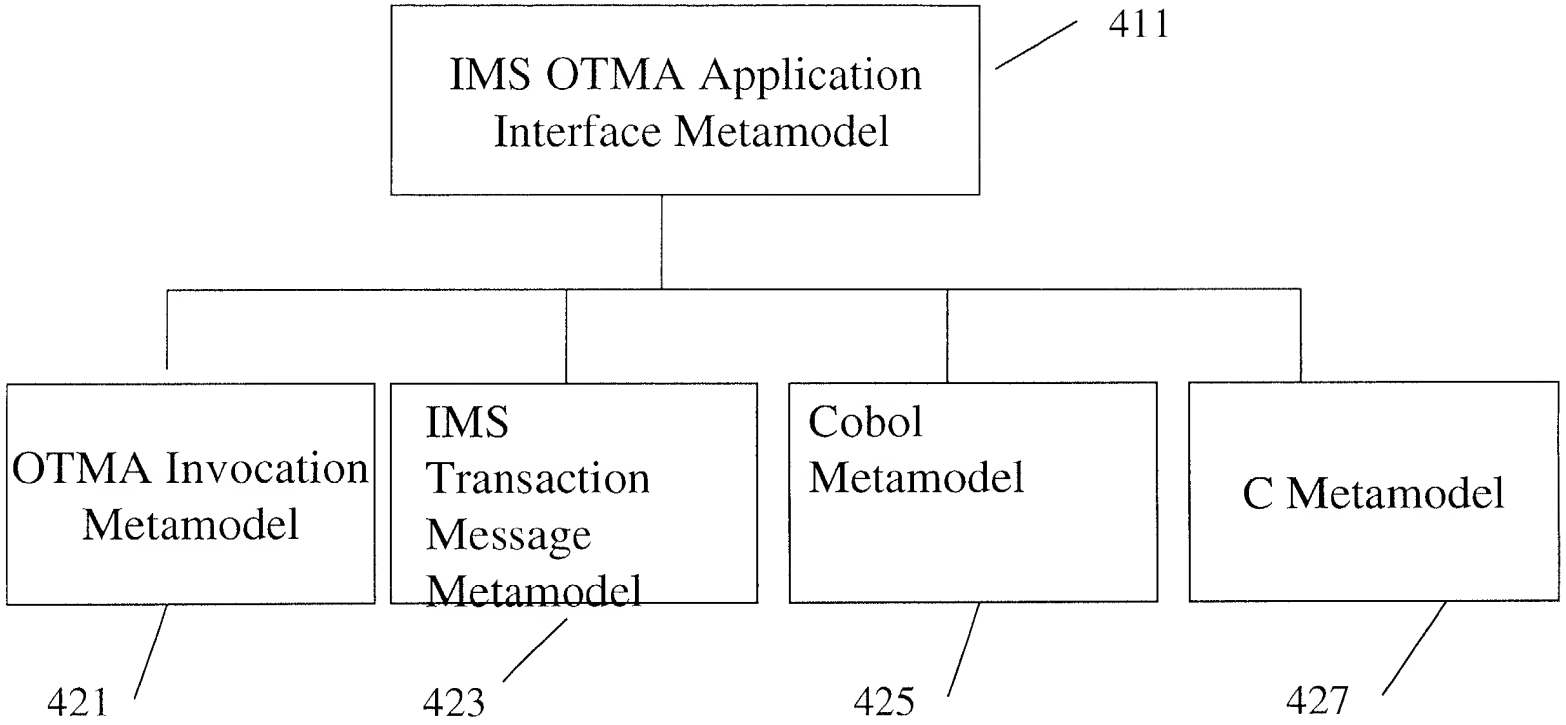
IMS OTMA Application Interface Metamodel
411
OTMA Invocation Metamodel
IMS Transaction Message Metamodel
Cobol Metamodel
C Metamodel
421
423
425
427

Figure 4

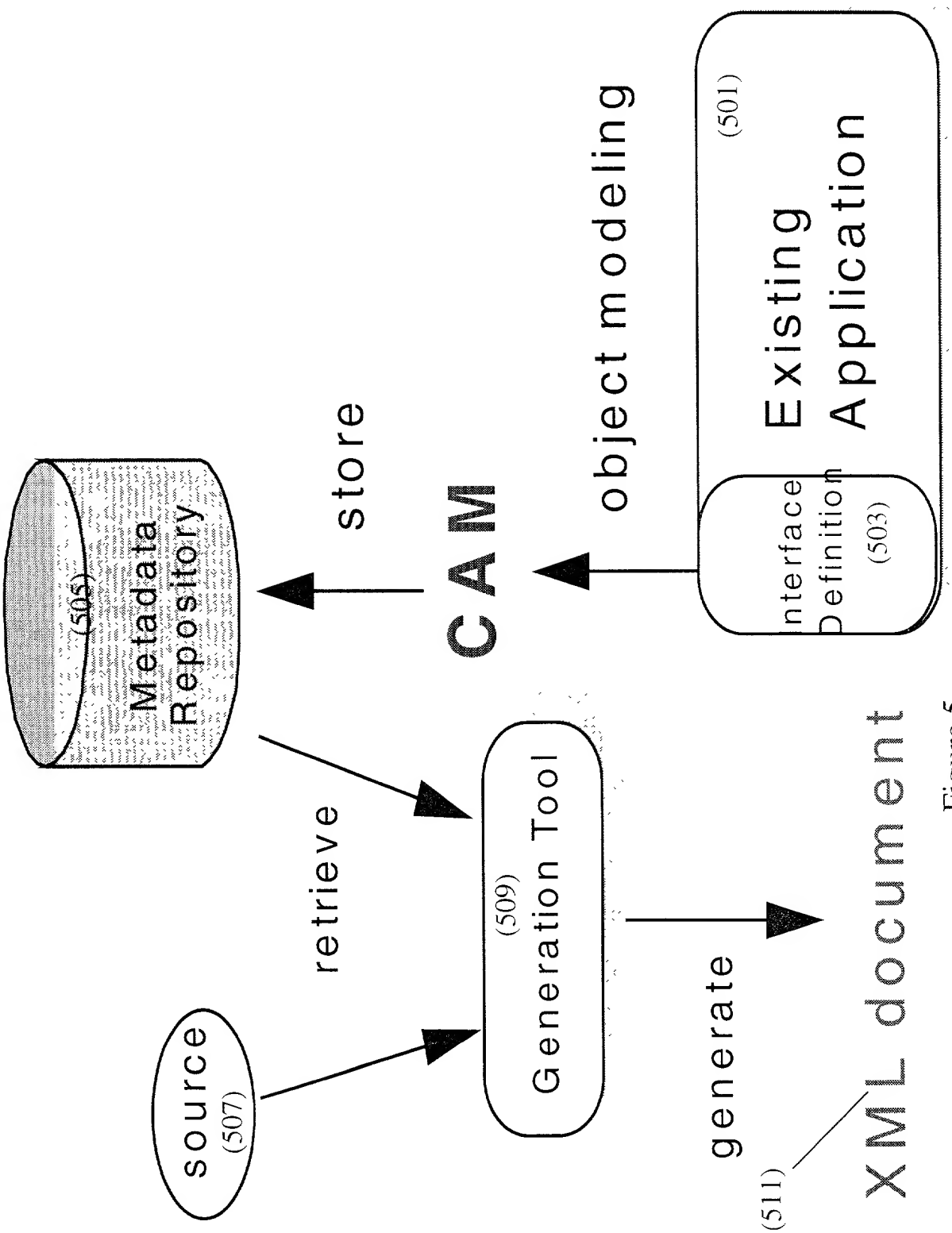
Existing Application
(501)
Interface Definition
(503)
object modeling
CAM
store
Metadata Repository
(505)
retrieve
source
(507)
Generation Tool
(509)
generate
(511)
XML document

Figure 5

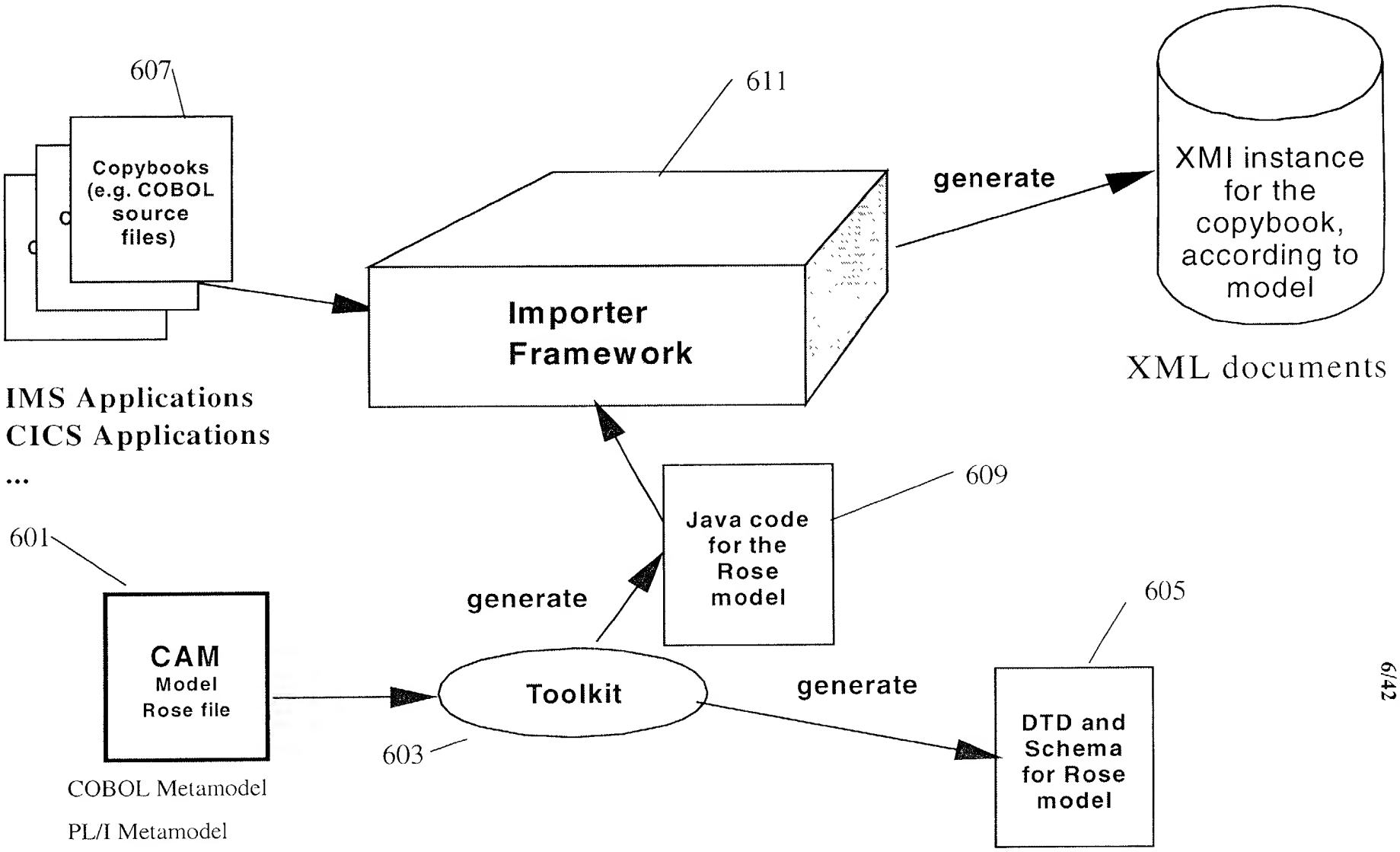

Figure 6

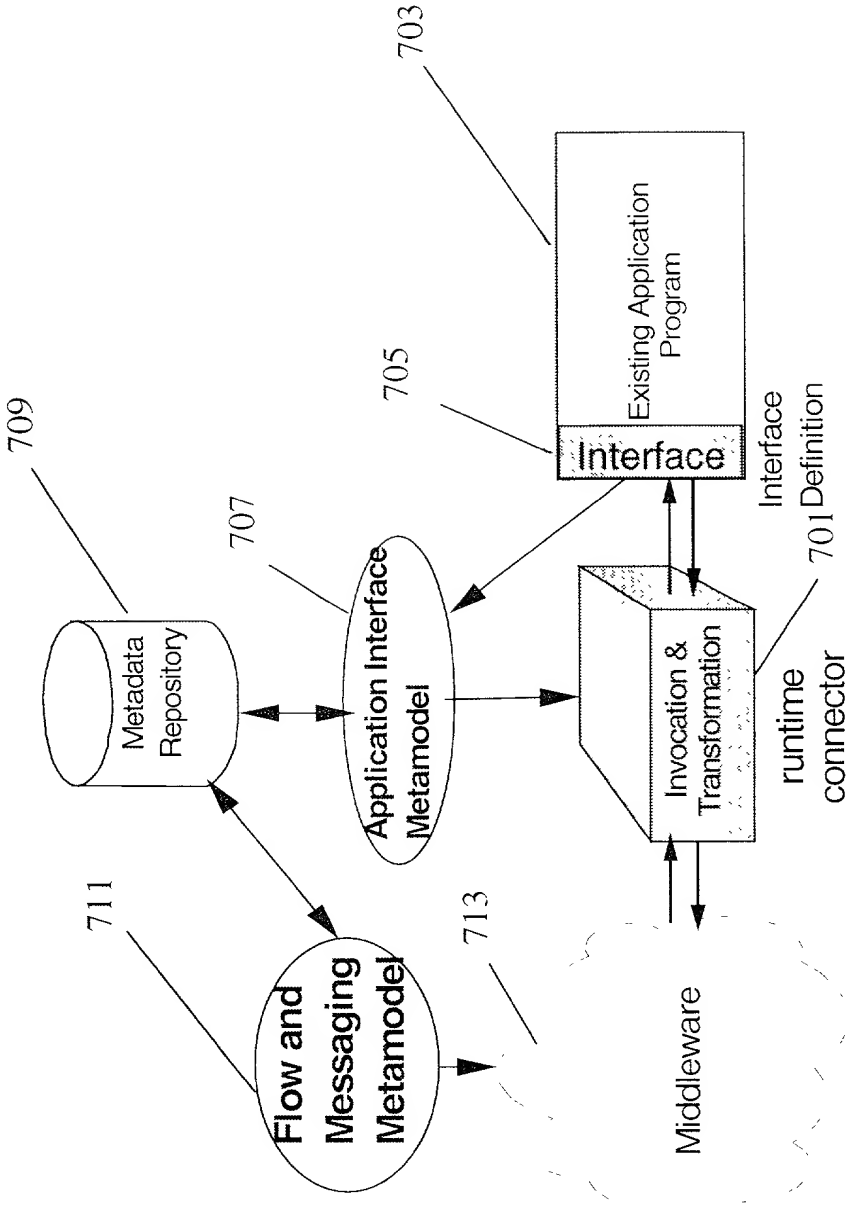
703
Existing Application Program
705
Interface
Interface Definition
701
709
Metadata Repository
707
Application Interface Metamodel
Invocation & Transformation
runtime connector
711
Flow and Messaging Metamodel
713
Middleware

Figure 7

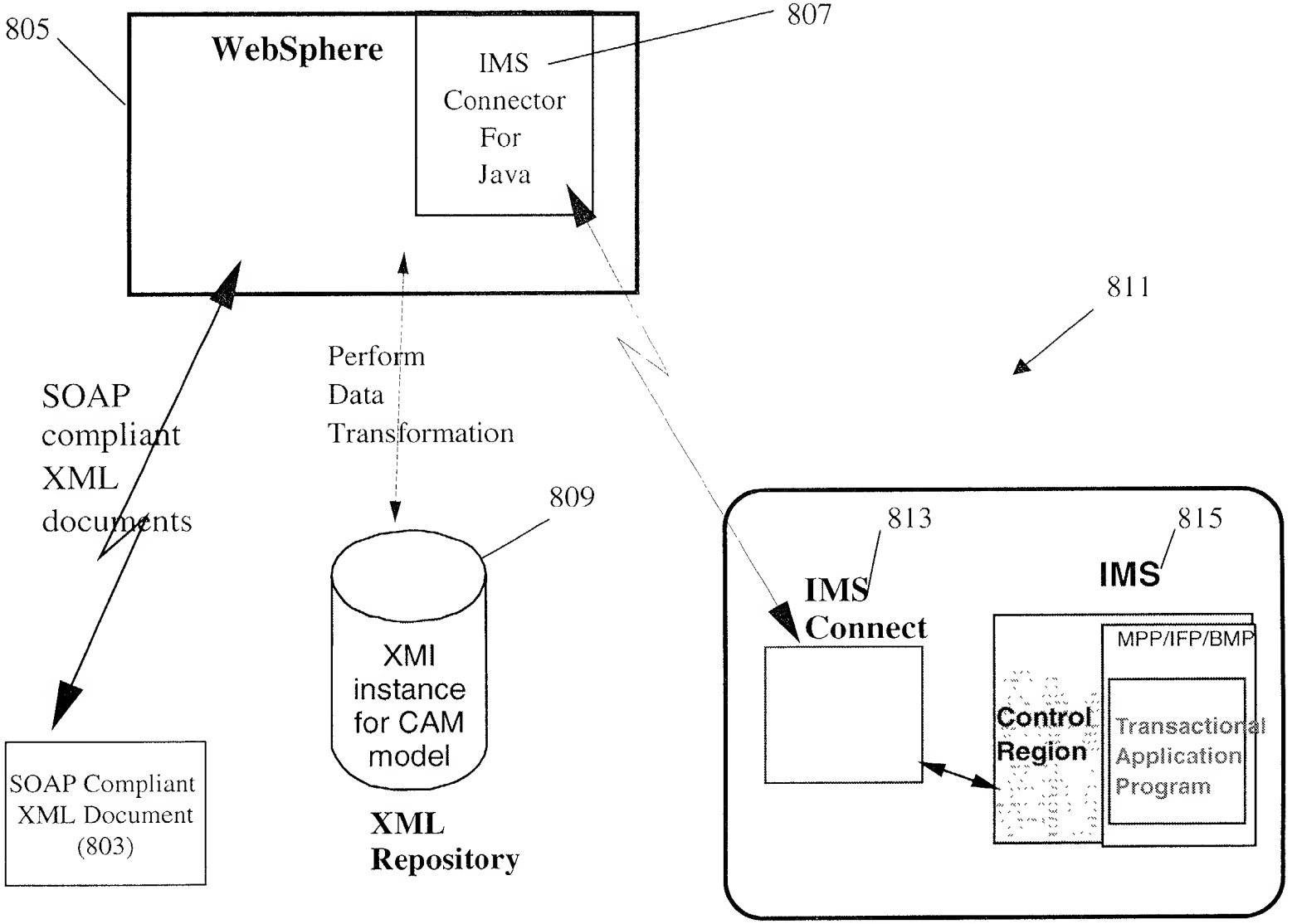
805
WebSphere
807
IMS
Connector
For
Java
811
SOAP
compliant
XML
documents
Perform
Data
Transformation
809
813
815
IMS
Connect
IMS
MPP/IFP/BMP
Control
Region
Transactional
Application
Program
XMI
instance
for CAM
model
SOAP Compliant
XML Document
(803)
XML
Repository

Figure 8

TDLangModelElement
name : String
<<derived>>
+tdLangTypedElement
TDLangElement
0 *
0 *
+tdLangElement
TDLangClassifier
+tdLangSharedType
1 1
<<derived>>
TDLangComposedType
+tdLangGroup
0 1

Figure 9

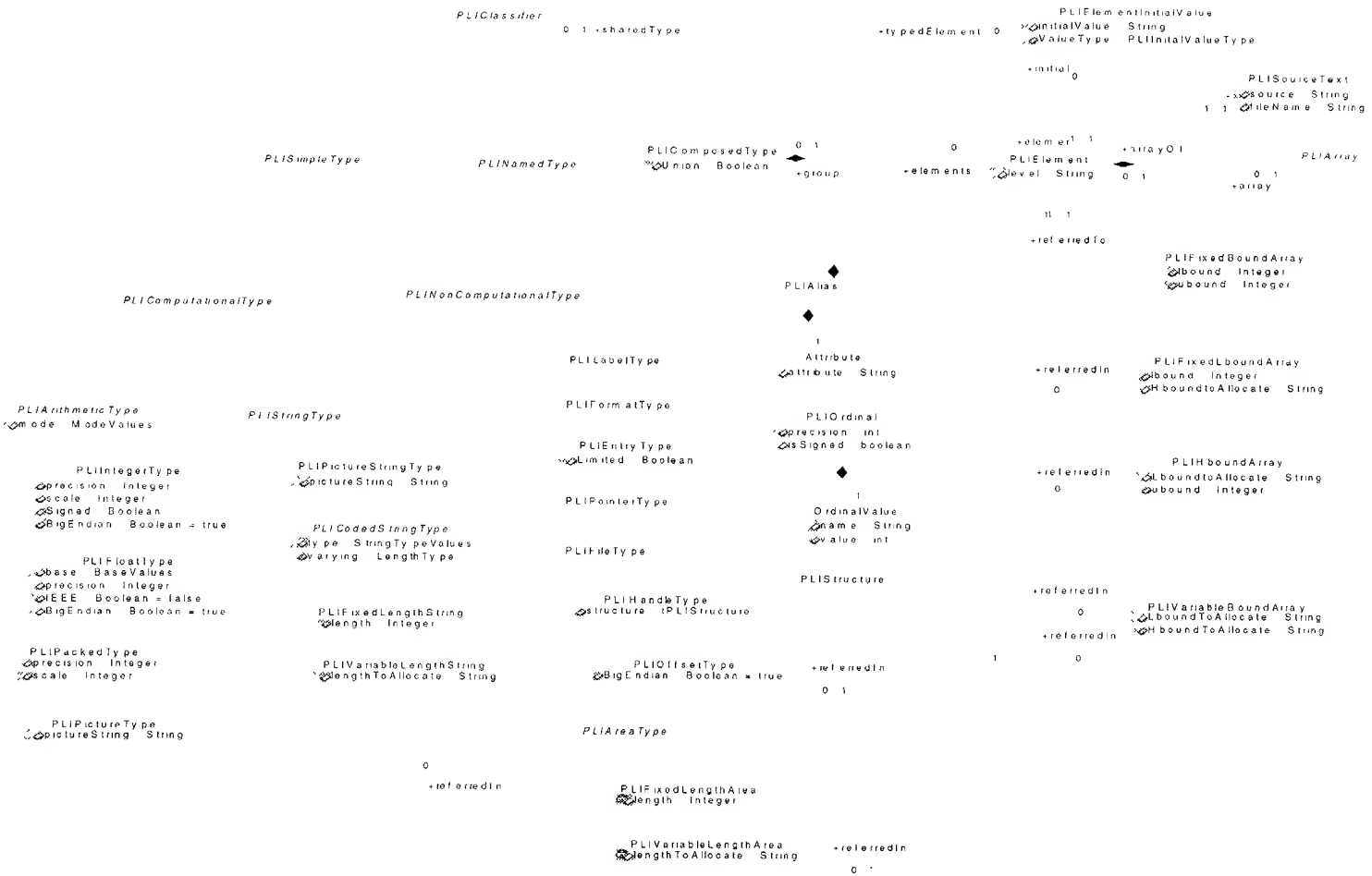
PLIClassifier
+sharedType
+typedElement
PLIElementInitialValue
initialValue String
valueType PLIInitalValueType
+initial
PLISourceText
source String
fileName String
PLISimpleType
PLINamedType
PLIComposedType
Union Boolean
+group
+elements
PLIElement
level String
+element
+arrayOf
PLIArray
+array
+referredTo
PLIFixedBoundArray
lbound Integer
ubound Integer
PLIComputationalType
PLINonComputationalType
PLIAlias
PLILabelType
Attribute
attribute String
+referredIn
PLIFixedLboundArray
lbound Integer
HboundtoAllocate String
PLIArithmeticType
mode ModeValues
PLIStringType
PLIFormatType
PLIOrdinal
precision int
isSigned boolean
PLIEntryType
limited Boolean
PLIPictureStringType
pictureString String
PLIHboundArray
LboundtoAllocate String
ubound integer
PLIPointerType
PLICodedStringType
type StringTypeValues
varying LengthType
OrdinalValue
name String
value int
PLIIntegerType
precision Integer
scale Integer
Signed Boolean
BigEndian Boolean = true
PLIFloatType
base BaseValues
precision Integer
IEEE Boolean = false
BigEndian Boolean = true
PLIFixedLengthString
length Integer
PLIHandleType
structure :PLIStructure
PLIStructure
PLIVariableBoundArray
LboundToAllocate String
HboundToAllocate String
PLIPackedType
precision Integer
scale Integer
PLIVariableLengthString
lengthToAllocate String
PLIOffsetType
BigEndian Boolean = true
PLIPictureType
pictureString String
PLIAreaType
PLIFixedLengthArea
length Integer
PLIVariableLengthArea
lengthToAllocate String

Figure 10

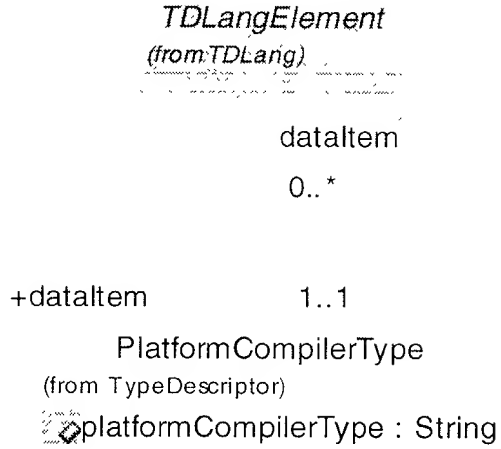
TDLangElement
(fromTDLang)
dataItem
0..*
+dataItem
1..1
PlatformCompilerType
(from TypeDescriptor)
platformCompilerType : String

Figure 11


<<enumeration>>
signCoding
twosComplement
onesComplement
signMagnitude
zoneSigns
packedSigns
unsignedBinary
unsignedDecimal
<<enumeration>>
lengthEncoding
fixedLength
lengthPrefixed
nullTerminated
<<enumeration>>
floatType
Unspecified
IEEEextendedIntel
IEEEextendedAIX
IEEEextendedOS390
IEEEextendedAS400
IEEEnonextended
IBM390Hex
IBM400Hex
<<enumeration>>
accessor
ReadOnly
WriteOnly
ReadWrite
NoAccess
<<enumeration>>
packedDecimalSign
MVS
MVSCustom
NT_OS2_AIX
<<enumeration>>
bitModePad
mode16
mode24
mode31
mode32
mode64
mode128
<<enumeration>>
addrUnit
bit
byte
word
doubleWord

Figure 12

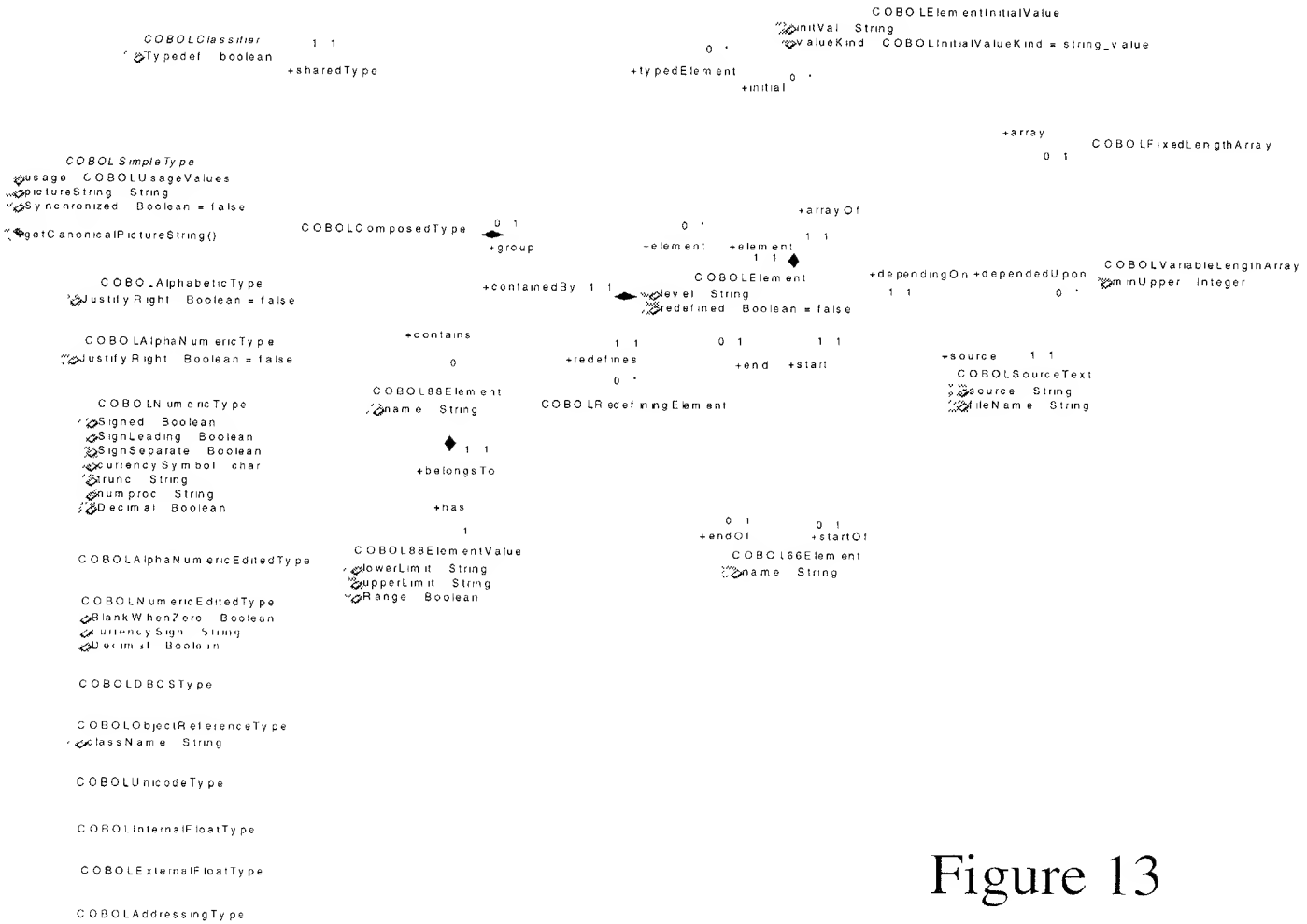
COBOLClassifier
Typedef boolean
+sharedType
1 1
COBOLElementInitialValue
initVal String
valueKind COBOLInitialValueKind = string_value
+typedElement
+initial
0 *
COBOLSimpleType
usage COBOLUsageValues
pictureString String
Synchronized Boolean = false
getCanonicalPictureString()
+array
COBOLFixedLengthArray
COBOLComposedType
+group
+arrayOf
+element
+element
COBOLElement
level String
redefined Boolean = false
+containedBy
+dependingOn
+dependedUpon
COBOLVariableLengthArray
minUpper Integer
COBOLAlphabeticType
Justify Right Boolean = false
COBOLAlphaNumericType
Justify Right Boolean = false
+contains
+redefines
+end
+start
COBOLRedefiningElement
+source
COBOLSourceText
source String
fileName String
COBOLNumericType
Signed Boolean
SignLeading Boolean
SignSeparate Boolean
currencySymbol char
Trunc String
numproc String
Decimal Boolean
COBOL88Element
name String
+belongsTo
+has
COBOLAlphaNumericEditedType
COBOLNumericEditedType
BlankWhenZero Boolean
currencySign String
Decimal Boolean
COBOL88ElementValue
lowerLimit String
upperLimit String
Range Boolean
+endOf
+startOf
COBOL66Element
name String
COBOLDBCSType
COBOLObjectReferenceType
className String
COBOLUnicodeType
COBOLInternalFloatType
COBOLExternalFloatType
COBOLAddressingType

Figure 13

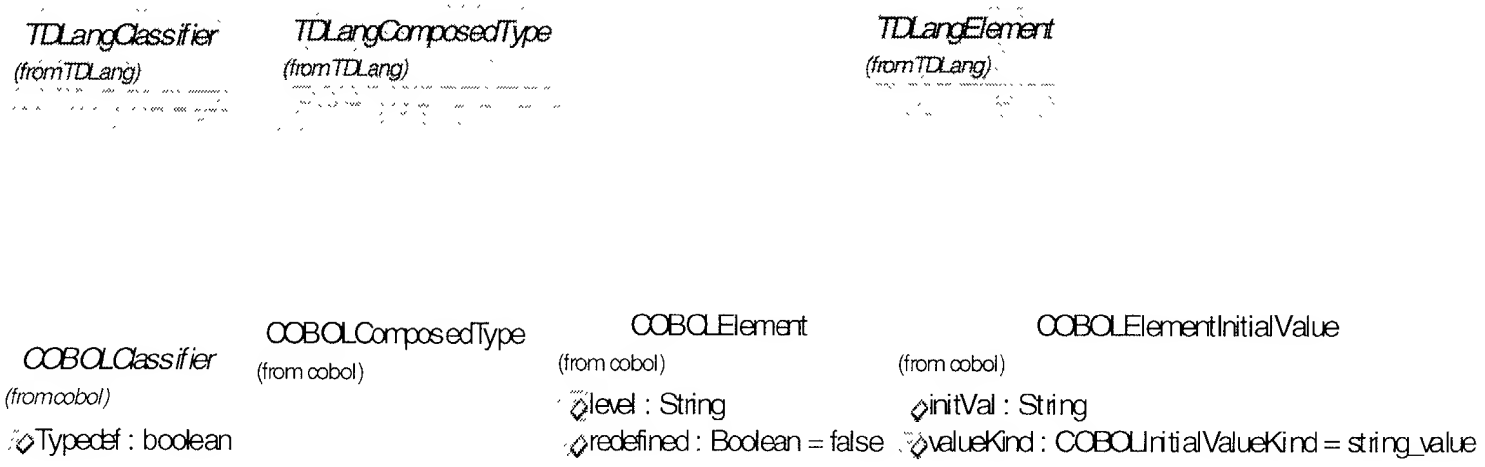
TDLangClassifier
(fromTDLang)
TDLangComposedType
(fromTDLang)
TDLangElement
(fromTDLang)
COBOLClassifier
(fromcobol)
Typedef : boolean
COBOLComposedType
(from cobol)
COBOLElement
(from cobol)
level : String
redefined : Boolean = false
COBOLElementInitialValue
(from cobol)
initVal : String
valueKind : COBOLInitialValueKind = string_value

Figure 14

<<enumeration>>
COBOLUsageValues
binary
dbcs
double
display
float
index
objectReference
packedDecimal
pointer
procedurePointer
<<enumeration>>
COBOLInitialValueKind
string_value
low_value
high_value
zero_value
quotes
null
all_literal

Figure 15

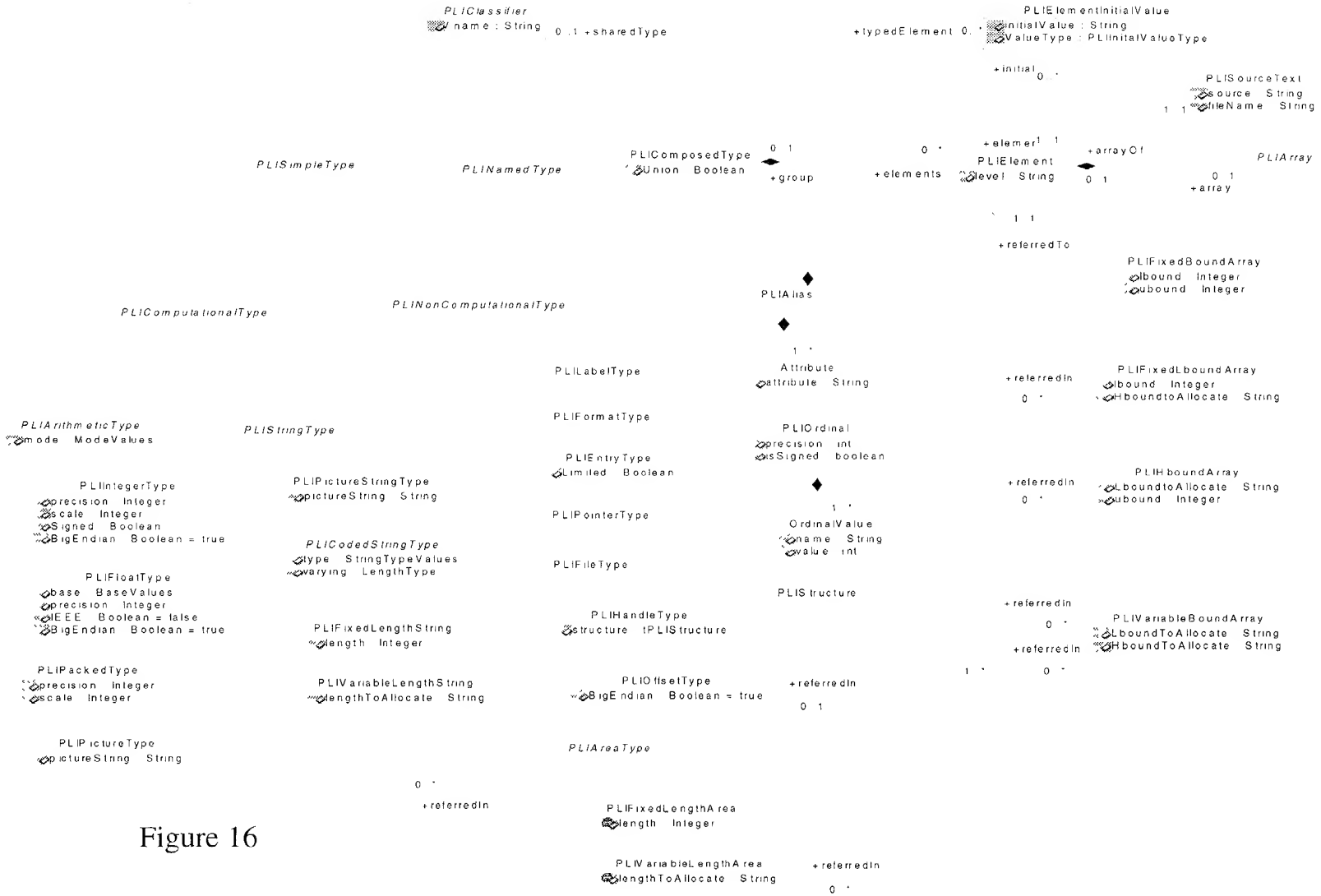
PLIClassifier
name : String
0..1 +sharedType
PLIElementInitialValue
+typedElement 0..*
initialValue : String
ValueType : PLIInitalValueType
+initial 0..*
PLISourceText
source String
fileName String
PLISimpleType
PLINamedType
PLIComposedType
Union Boolean
0..1
+group
0..*
+elements
+element 1..1
PLIElement
level String
+arrayOf
0..1
PLIArray
0..1
+array
1..1
+referredTo
PLIFixedBoundArray
lbound Integer
ubound Integer
PLIComputationalType
PLINonComputationalType
PLIAlias
1..*
Attribute
attribute String
PLILabelType
PLIFormatType
PLIEntryType
Limited Boolean
PLIPointerType
PLIFileType
PLIHandleType
structure tPLIStructure
PLIOffsetType
BigEndian Boolean = true
PLIAreaType
PLIFixedLengthArea
length Integer
PLIVariableLengthArea
lengthToAllocate String
PLIOrdinal
precision int
isSigned boolean
OrdinalValue
name String
value int
PLIStructure
+referredIn
0..1
+referredIn
0..*
PLIFixedLboundArray
lbound Integer
HboundtoAllocate String
+referredIn
0..*
PLIHboundArray
LboundtoAllocate String
ubound Integer
+referredIn
0..*
+referredIn
0..*
PLIVariableBoundArray
LboundToAllocate String
HboundToAllocate String
PLIArithmeticType
mode ModeValues
PLIIntegerType
precision Integer
scale Integer
Signed Boolean
BigEndian Boolean = true
PLIFloatType
base BaseValues
precision Integer
IEEE Boolean = false
BigEndian Boolean = true
PLIPackedType
precision Integer
scale Integer
PLIPictureType
pictureString String
PLIStringType
PLIPictureStringType
pictureString String
PLICodedStringType
type StringTypeValues
varying LengthType
PLIFixedLengthString
length Integer
PLIVariableLengthString
lengthToAllocate String
0..*
+referredIn

Figure 16

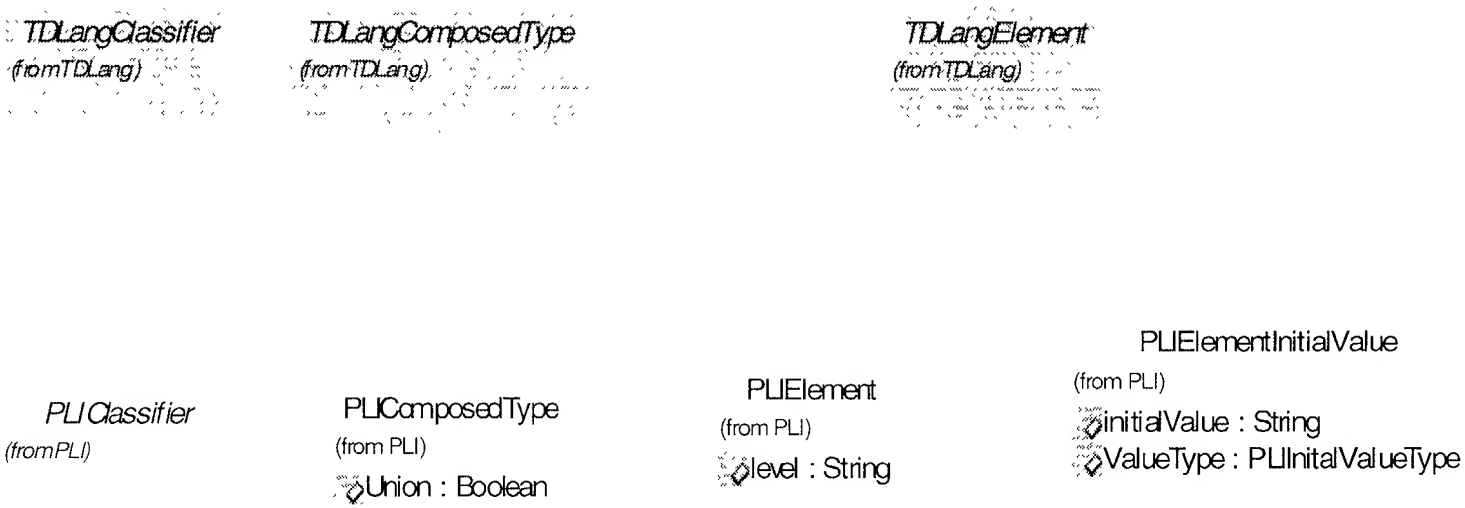
TDLangClassifier
(from TDLang)
TDLangComposedType
(from TDLang)
TDLangElement
(from TDLang)
PLIClassifier
(from PLI)
PLIComposedType
(from PLI)
Union : Boolean
PLIElement
(from PLI)
level : String
PLIElementInitialValue
(from PLI)
initialValue : String
ValueType : PLIInitalValueType

Figure 17

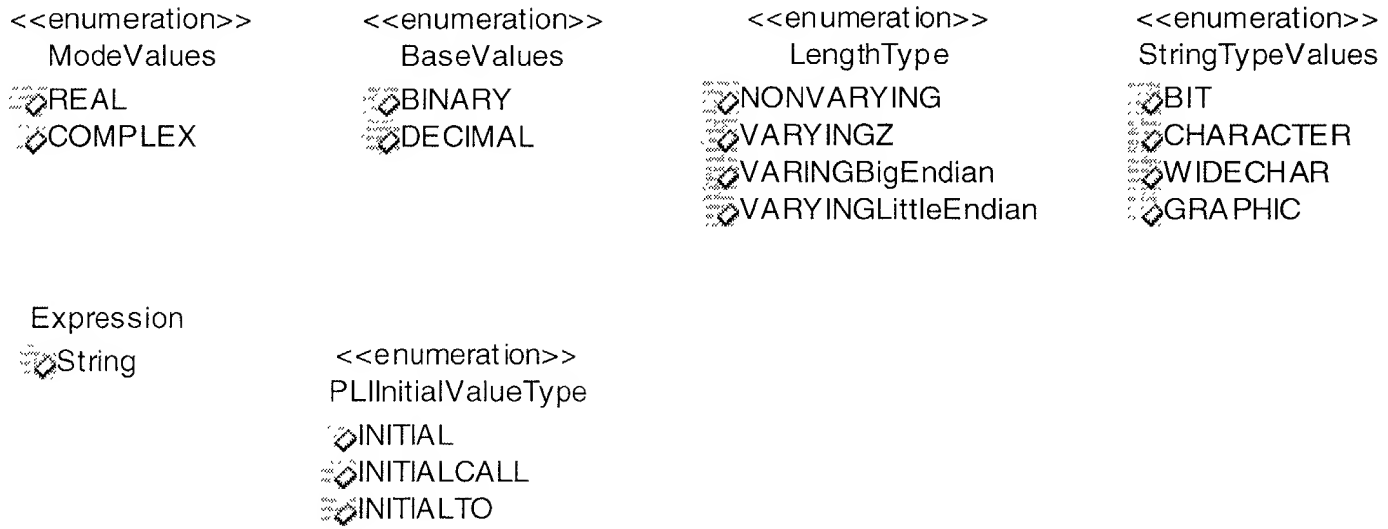
<<enumeration>>
ModeValues
REAL
COMPLEX
<<enumeration>>
BaseValues
BINARY
DECIMAL
<<enumeration>>
LengthType
NONVARYING
VARYINGZ
VARINGBigEndian
VARYINGLittleEndian
<<enumeration>>
StringTypeValues
BIT
CHARACTER
WIDECHAR
GRAPHIC
Expression
String
<<enumeration>>
PLIInitialValueType
INITIAL
INITIALCALL
INITIALTO

Figure 18

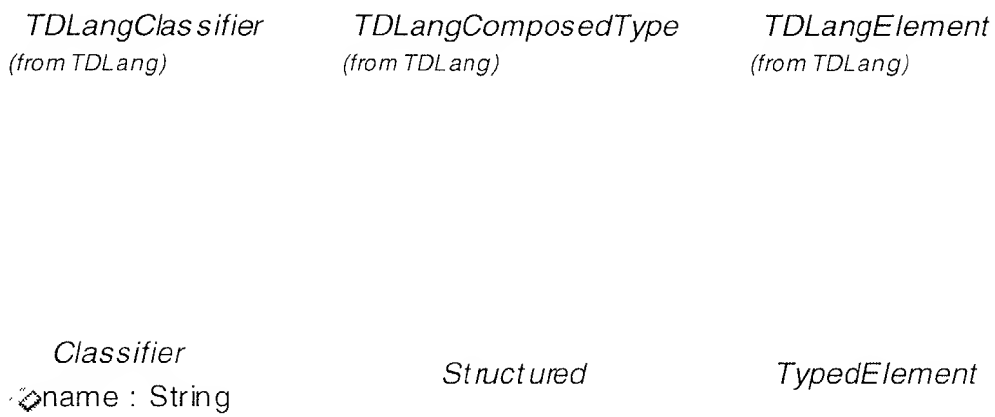
TDLangClassifier
(from TDLang)
TDLangComposedType
(from TDLang)
TDLangElement
(from TDLang)
Classifier
name : String
Structured
TypedElement

Figure 19

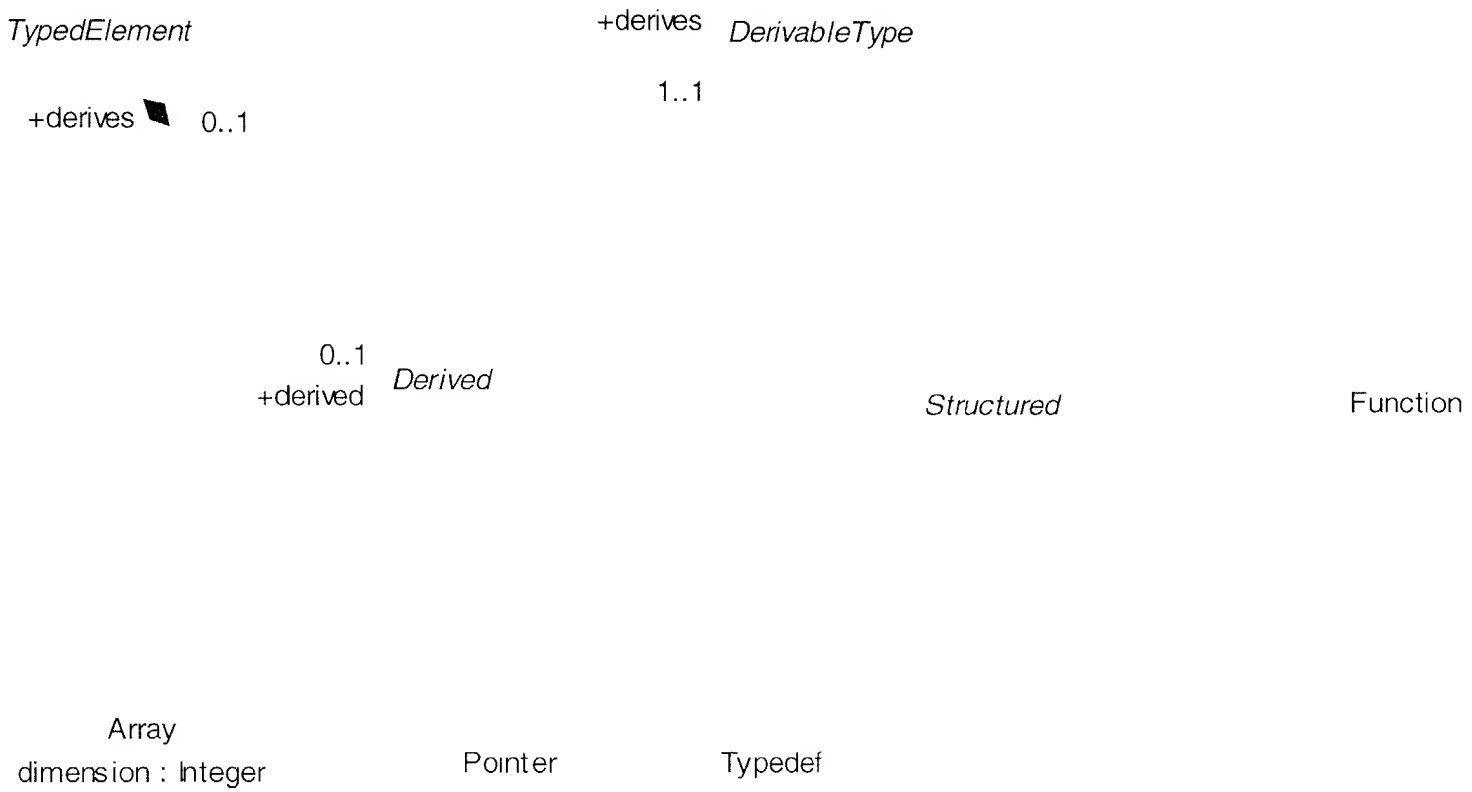
TypedElement
+derives
0..1
+derives
DerivableType
1..1
0..1
+derived
Derived
Structured
Function
Array
dimension : Integer
Pointer
Typedef

Figure 20

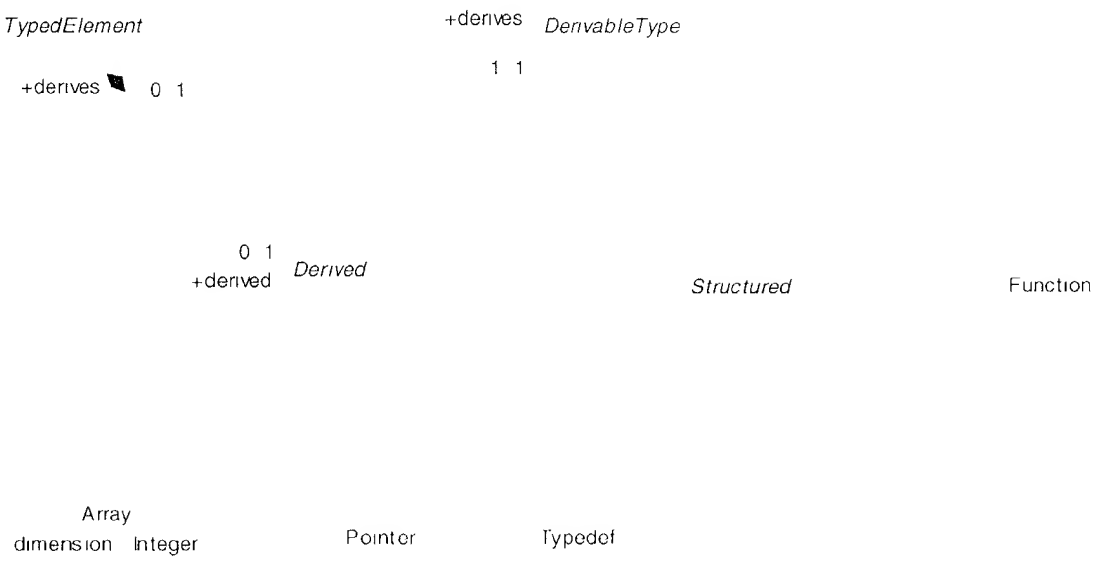
TypedElement
+derives
0 1
+derives
DerivableType
1 1
0 1
+derived
Derived
Structured
Function
Array
dimension
Integer
Pointer
Typedef

Figure 21

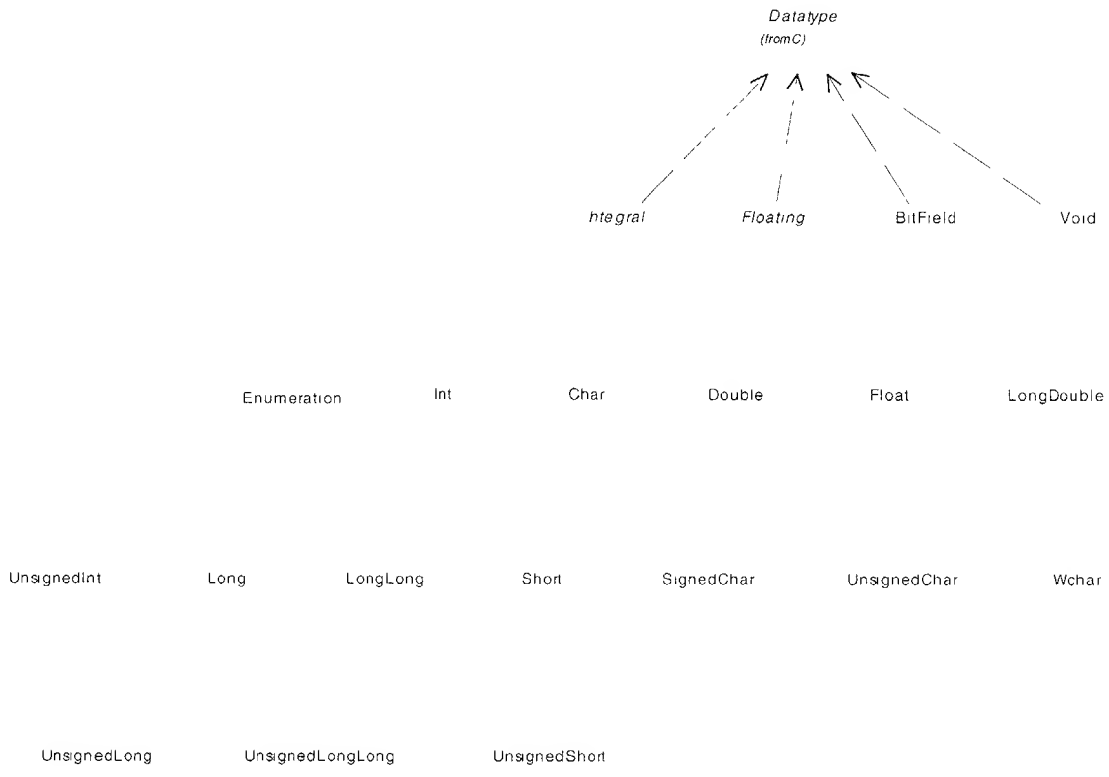
Datatype
(fromC)
Integral
Floating
BitField
Void
Enumeration
Int
Char
Double
Float
LongDouble
UnsignedInt
Long
LongLong
Short
SignedChar
UnsignedChar
Wchar
UnsignedLong
UnsignedLongLong
UnsignedShort

Figure 22

Figure 23

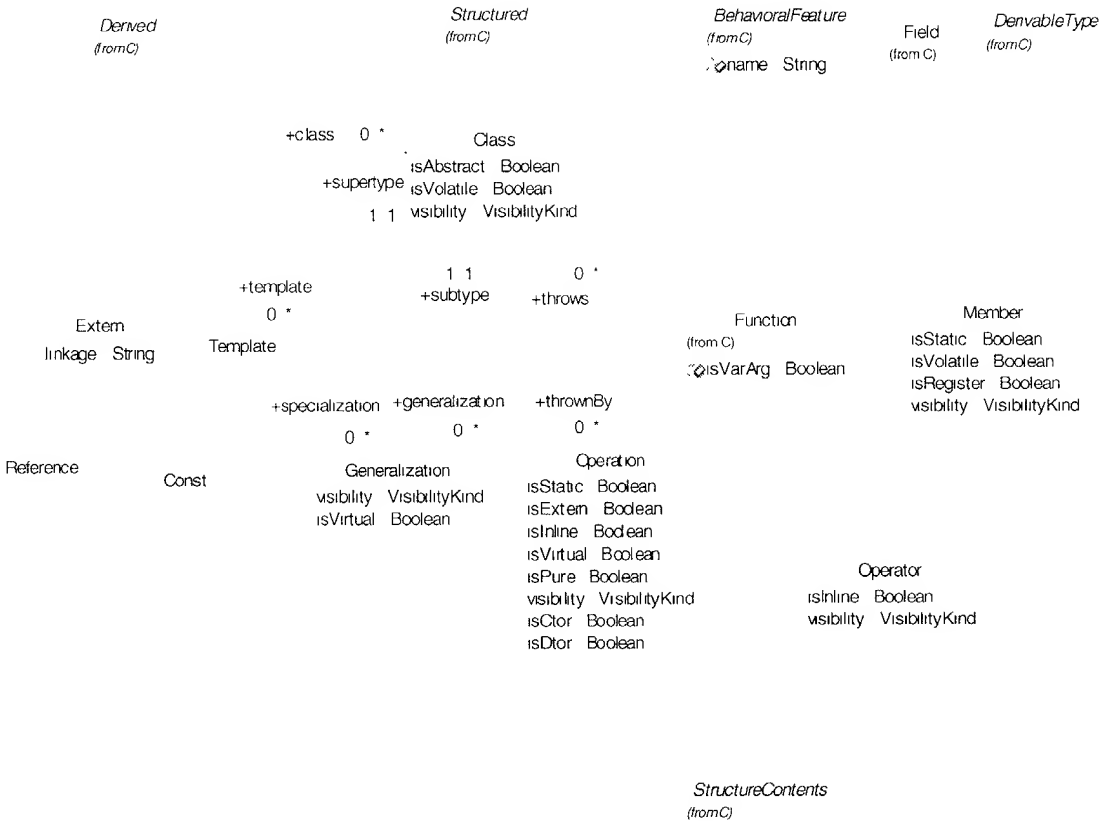
Derived
(fromC)
Structured
(fromC)
BehavioralFeature
(fromC)
name String
Field
(from C)
DenvableType
(fromC)
+class 0 *
Class
isAbstract Boolean
+supertype
isVolatile Boolean
1 1
visibility VisibilityKind
+template
0 *
1 1
+subtype
0 *
+throws
Extern
linkage String
Template
Function
(from C)
isVarArg Boolean
Member
isStatic Boolean
isVolatile Boolean
isRegister Boolean
visibility VisibilityKind
+specialization
0 *
+generalization
0 *
+thrownBy
0 *
Reference
Const
Generalization
visibility VisibilityKind
isVirtual Boolean
Operation
isStatic Boolean
isExtern Boolean
isInline Boolean
isVirtual Boolean
isPure Boolean
visibility VisibilityKind
isCtor Boolean
isDtor Boolean
Operator
isInline Boolean
visibility VisibilityKind
StructureContents
(fromC)

Figure 24

Figure 25

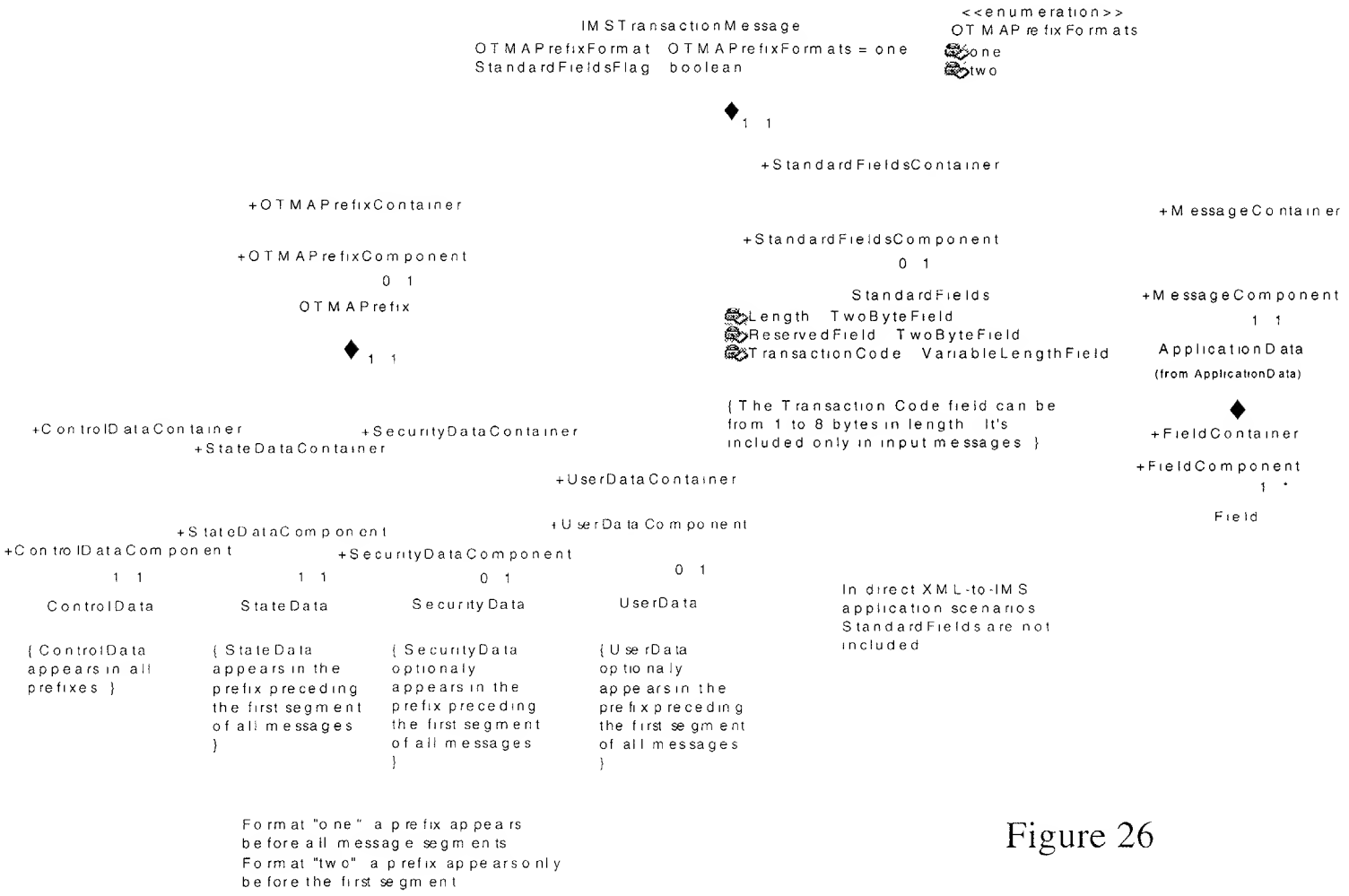
IMSTransactionMessage
OTMAPrefixFormat OTMAPrefixFormats = one
StandardFieldsFlag boolean
<<enumeration>>
OTMAPrefixFormats
one
two
1 1
+StandardFieldsContainer
+OTMAPrefixContainer
+OTMAPrefixComponent
0 1
OTMAPrefix
1 1
+StandardFieldsComponent
0 1
StandardFields
Length TwoByteField
ReservedField TwoByteField
TransactionCode VariableLengthField
{ The Transaction Code field can be from 1 to 8 bytes in length It's included only in input messages }
+MessageContainer
+MessageComponent
1 1
ApplicationData
(from ApplicationData)
+FieldContainer
+FieldComponent
1 *
Field
+ControlDataContainer
+StateDataContainer
+SecurityDataContainer
+UserDataContainer
+StateDataComponent
+ControlDataComponent
+SecurityDataComponent
+UserDataComponent
1 1
1 1
0 1
0 1
ControlData
StateData
SecurityData
UserData
{ ControlData appears in all prefixes }
{ StateData appears in the prefix preceding the first segment of all messages }
{ SecurityData optionaly appears in the prefix preceding the first segment of all messages }
{ UserData optionaly appears in the prefix preceding the first segment of all messages }
In direct XML-to-IMS application scenarios StandardFields are not included
Format "one" a prefix appears before all message segments
Format "two" a prefix appears only before the first segment

Figure 26


OTMAPrefix
1 1
+ControlDataContainer
+StateDataContainer
+SecurityDataContainer
+UserDataContainer
+ControlDataComponent
1 1
ControlData
ArchitectureLevel OneByteField
MessageType : TMessageType
ResponseFlag OneByteField
CommitConfirmationFlag TCommitConfirmationFl
CommandType TCommandType
ProcessingFlag TProcessingFlag
TpipeName : EightByteField
ChainFlag TChainFlag
PrefixFlag TPrefixFlag
SendSequenceNumber FourByteField
SenseCode TwoByteField
ReasonCode TwoByteField
RecoverableSequenceNumber FourByteField
SegmentSequenceNumber TwoByteField
Reserved TwoByteField
+StateDataComponent
1 1
StateData
Length TwoByteField
ServerState TServerState
SynchronizationFlag TSynchronizationFlag
SynchronizationLevel TSynchronizationLeve
Reserved . OneByteField
MapName EightByteField
ServerToken SixteenByteField
CorrelatorToken SixteenByteField
ContextID SixteenByteField
DestinationOverride EightByteField
ServerUserDataLength TwoByteField
ServerUserData VariableLengthField
+SecurityDataComponent
0 1
SecurityData
Length TwoByteField
SecuntyFlag TSecuntyFlag
LengthOfSecuntyFields OneByteField
UtokenLength OneByteField
UtokenType OneByteField
Utoken VariableLengthField
UserIDLength OneByteField
UserIDType OneByteField
UserID VariableLengthField
ProfileLength OneByteField
ProfileType OneByteField
Profile VariableLengthField
+UserDataComponent
0 1
UserData
Length TwoByteField
UserData VariableLengthField

Figure 27

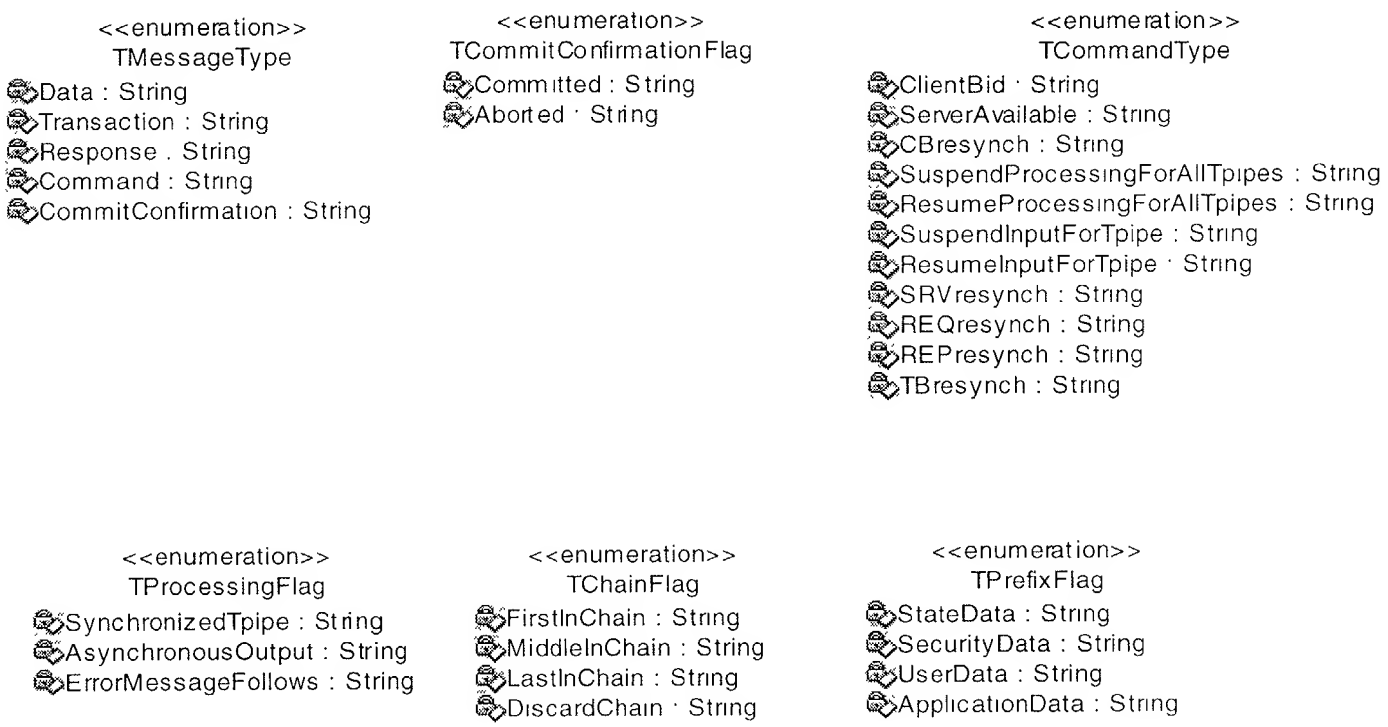
<<enumeration>>
TMessageType
Data : String
Transaction : String
Response . String
Command : String
CommitConfirmation : String
<<enumeration>>
TCommitConfirmationFlag
Committed : String
Aborted · String
<<enumeration>>
TCommandType
ClientBid · String
ServerAvailable : String
CBresynch : String
SuspendProcessingForAllTpipes : String
ResumeProcessingForAllTpipes : String
SuspendInputForTpipe : String
ResumeInputForTpipe · String
SRVresynch : String
REQresynch : String
REPresynch : String
TBresynch : String
<<enumeration>>
TProcessingFlag
SynchronizedTpipe : String
AsynchronousOutput : String
ErrorMessageFollows : String
<<enumeration>>
TChainFlag
FirstInChain : String
MiddleInChain : String
LastInChain : String
DiscardChain · String
<<enumeration>>
TPrefixFlag
StateData : String
SecurityData : String
UserData : String
ApplicationData : String

Figure 28

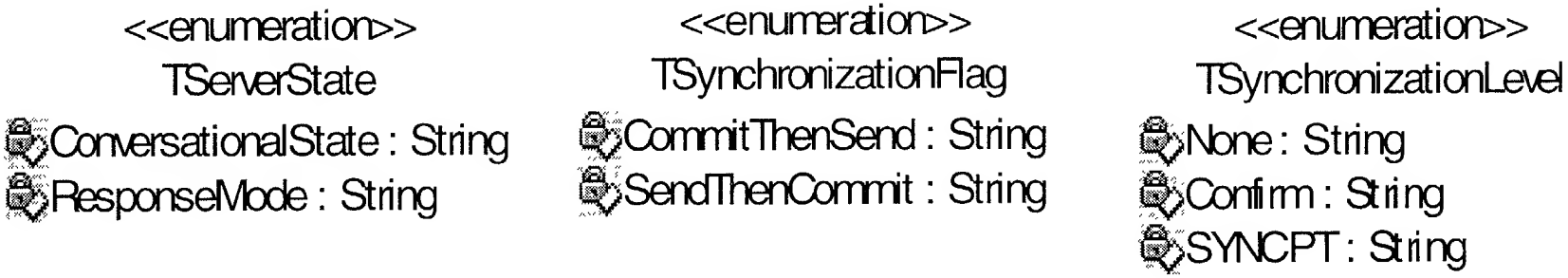
<<enumeration>>
TServerState
ConversationalState : String
ResponseMode : String
<<enumeration>>
TSynchronizationFlag
CommitThenSend : String
SendThenCommit : String
<<enumeration>>
TSynchronizationLevel
None : String
Confirm : String
SYNCPT : String

Figure 29

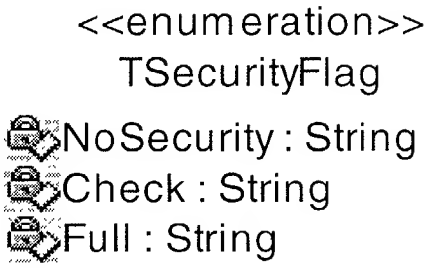
<<enumeration>>
TSecurityFlag
NoSecurity : String
Check : String
Full : String

Figure 30

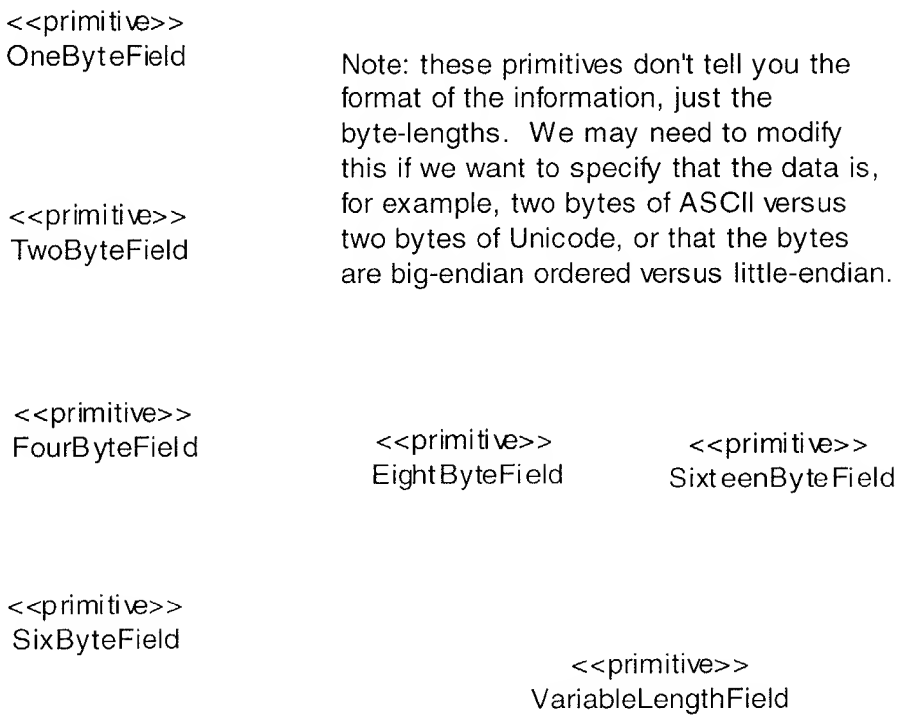
<<primitive>>
OneByteField
Note: these primitives don't tell you the format of the information, just the byte-lengths. We may need to modify this if we want to specify that the data is, for example, two bytes of ASCII versus two bytes of Unicode, or that the bytes are big-endian ordered versus little-endian.
<<primitive>>
TwoByteField
<<primitive>>
FourByteField
<<primitive>>
EightByteField
<<primitive>>
SixteenByteField
<<primitive>>
SixByteField
<<primitive>>
VariableLengthField

Figure 31

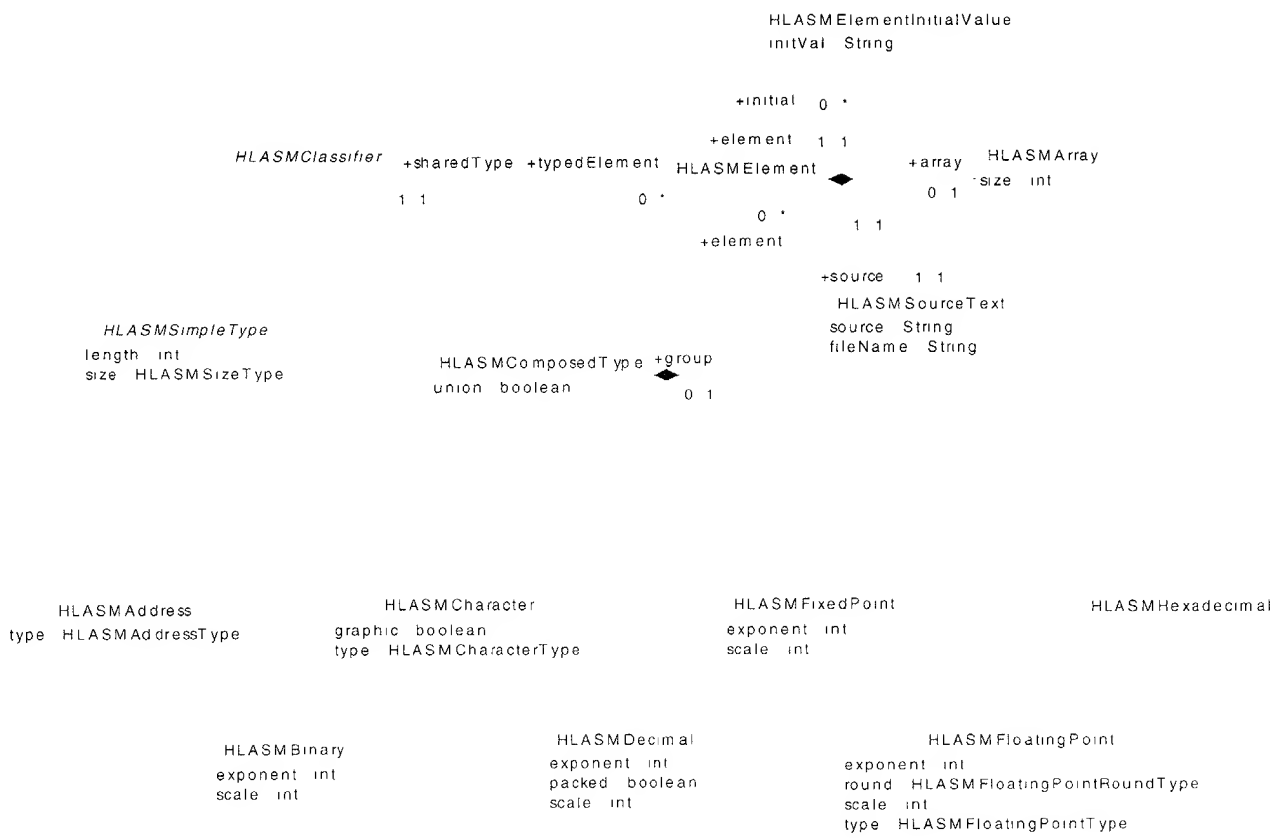
HLASMElementInitialValue
initVal String
+initial 0 *
+element 1 1
HLASMClassifier
+sharedType
+typedElement
HLASMElement
+array
HLASMArray
size int
1 1
0 *
0 1
0 *
1 1
+element
+source 1 1
HLASMSourceText
source String
fileName String
HLASMSimpleType
length int
size HLASMSizeType
HLASMComposedType
+group
union boolean
0 1
HLASMAddress
type HLASMAddressType
HLASMCharacter
graphic boolean
type HLASMCharacterType
HLASMFixedPoint
exponent int
scale int
HLASMHexadecimal
HLASMBinary
exponent int
scale int
HLASMDecimal
exponent int
packed boolean
scale int
HLASMFloatingPoint
exponent int
round HLASMFloatingPointRoundType
scale int
type HLASMFloatingPointType

Figure 32

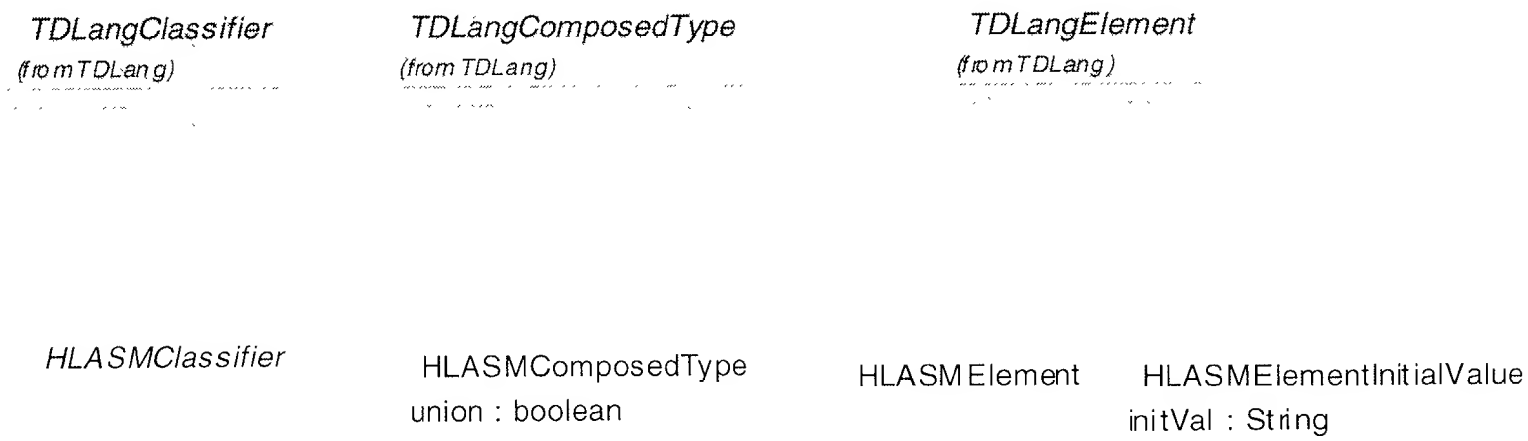
TDLangClassifier
(from TDLang)
TDLangComposedType
(from TDLang)
TDLangElement
(from TDLang)
HLASMClassifier
HLASMComposedType
union : boolean
HLASMElement
HLASMElementInitialValue
initVal : String

Figure 33

<<enumeration>>
HLASMAddressType
addressValue
baseRegisterAndDisplacementValue
cumulativeExternalDummy
externalDummySectionOffset
externalSymbolAddress
lengthOfClassOfCumulativeExternalDummy
pseudoAddress
<<enumeration>>
HLASMCharacterType
ASCII
DBCS
EBCDIC
mixedDBCS
unicode
<<enumeration>>
HLASMFloatingPointRoundType
addOneInFirstLostBitPosition
roundDown
roundUp
roundToZero
unbiasedNearest
<<enumeration>>
HLASMFloatingPointType
binary
hexadecimal
<<enumeration>>
HLASMSizeType
bit
byte
halfword
fullword
doubleword
quad
twodoublewords

Figure 34

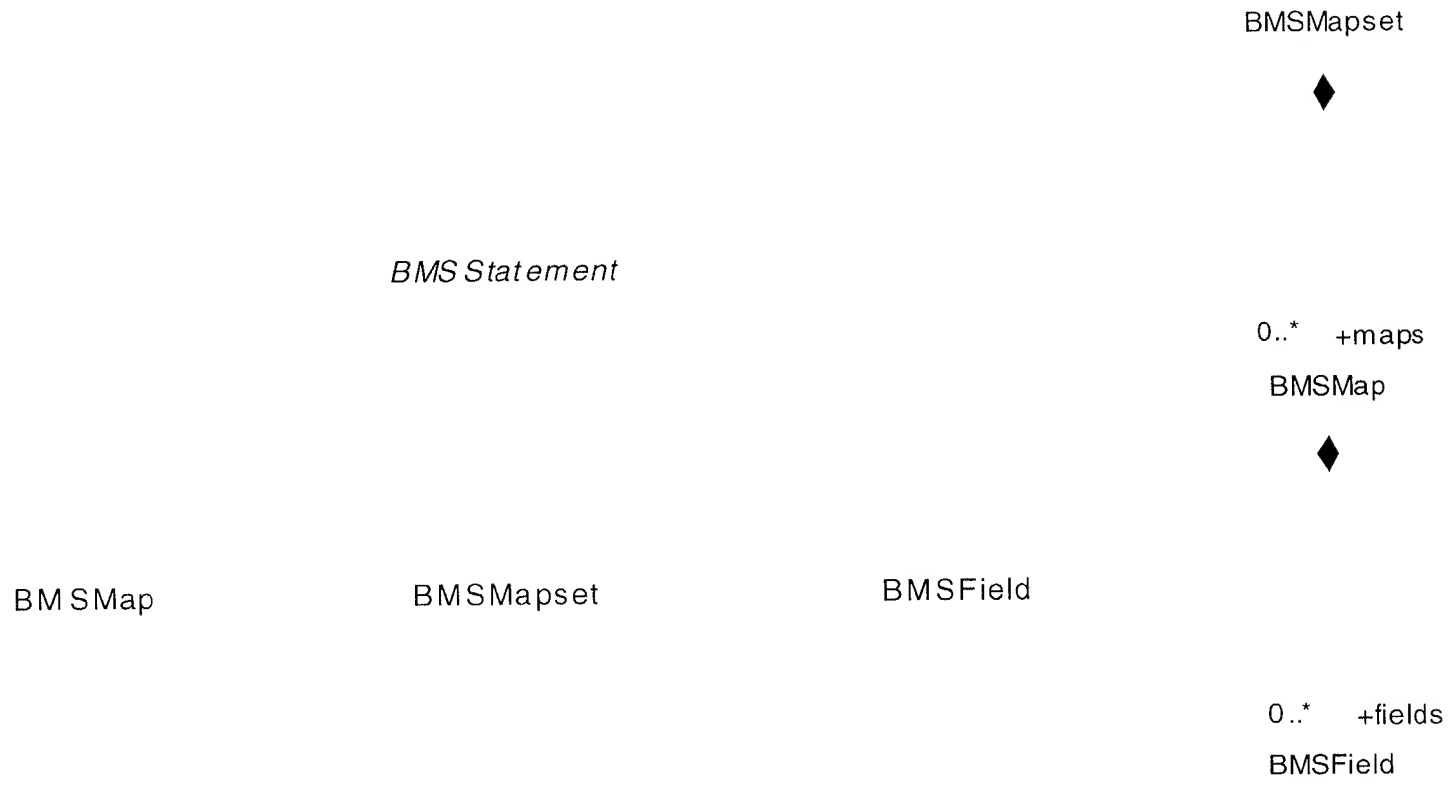
BMSMapset
BMSStatement
0..*
+maps
BMSMap
BMSMap
BMSMapset
BMSField
0..*
+fields
BMSField

Figure 35

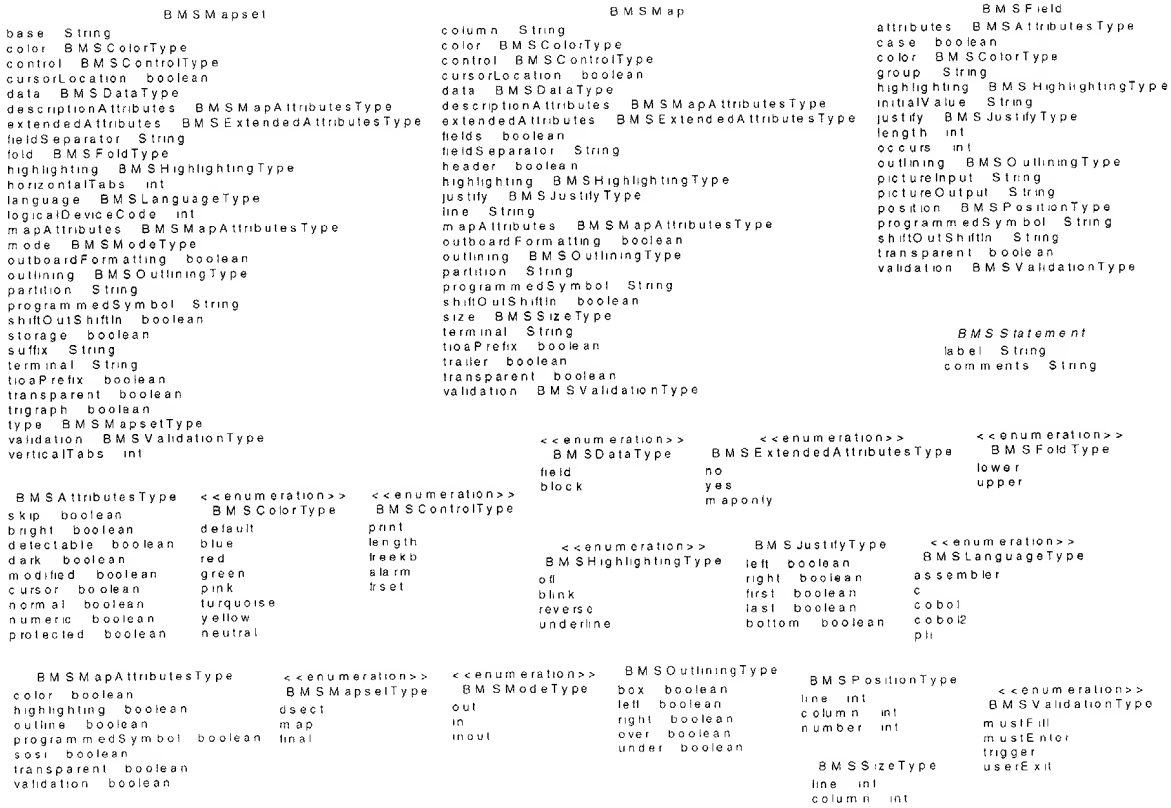
BMSMapset
base String
color BMSColorType
control BMSControlType
cursorLocation boolean
data BMSDataType
descriptionAttributes BMSMapAttributesType
extendedAttributes BMSExtendedAttributesType
fieldSeparator String
fold BMSFoldType
highlighting BMSHighlightingType
horizontalTabs int
language BMSLanguageType
logicalDeviceCode int
mapAttributes BMSMapAttributesType
mode BMSModeType
outboardFormatting boolean
outlining BMSOutliningType
partition String
programmedSymbol String
shiftOutShiftIn boolean
storage boolean
suffix String
terminal String
tioaPrefix boolean
transparent boolean
trigraph boolean
type BMSMapsetType
validation BMSValidationType
verticalTabs int
BMSMap
column String
color BMSColorType
control BMSControlType
cursorLocation boolean
data BMSDataType
descriptionAttributes BMSMapAttributesType
extendedAttributes BMSExtendedAttributesType
fields boolean
fieldSeparator String
header boolean
highlighting BMSHighlightingType
justify BMSJustifyType
line String
mapAttributes BMSMapAttributesType
outboardFormatting boolean
outlining BMSOutliningType
partition String
programmedSymbol String
shiftOutShiftIn boolean
size BMSSizeType
terminal String
tioaPrefix boolean
trailer boolean
transparent boolean
validation BMSValidationType
BMSField
attributes BMSAttributesType
case boolean
color BMSColorType
group String
highlighting BMSHighlightingType
initialValue String
justify BMSJustifyType
length int
occurs int
outlining BMSOutliningType
pictureInput String
pictureOutput String
position BMSPositionType
programmedSymbol String
shiftOutShiftIn String
transparent boolean
validation BMSValidationType
BMSStatement
label String
comments String
BMSAttributesType
skip boolean
bright boolean
detectable boolean
dark boolean
modified boolean
cursor boolean
normal boolean
numeric boolean
protected boolean
<<enumeration>>
BMSColorType
default
blue
red
green
pink
turquoise
yellow
neutral
<<enumeration>>
BMSControlType
print
length
freekb
alarm
frset
<<enumeration>>
BMSDataType
field
block
<<enumeration>>
BMSExtendedAttributesType
no
yes
maponly
<<enumeration>>
BMSFoldType
lower
upper
<<enumeration>>
BMSHighlightingType
off
blink
reverse
underline
BMSJustifyType
left boolean
right boolean
first boolean
last boolean
bottom boolean
<<enumeration>>
BMSLanguageType
assembler
c
cobol
cobol2
pli
BMSMapAttributesType
color boolean
highlighting boolean
outline boolean
programmedSymbol boolean
sosi boolean
transparent boolean
validation boolean
<<enumeration>>
BMSMapsetType
dsect
map
final
<<enumeration>>
BMSModeType
out
in
inout
BMSOutliningType
box boolean
left boolean
right boolean
over boolean
under boolean
BMSPositionType
line int
column int
number int
BMSSizeType
line int
column int
<<enumeration>>
BMSValidationType
mustFill
mustEnter
trigger
userExit

Figure 36


MFSStatement
MFSMessageDescriptor
MFSDeviceDescriptor
MFSTable
MFSIfCondition
MFSLogicalPage
MFSDeviceType
MFSPassword
MFSDeviceDivision
MFSSegment
MFSDevicePage
MFSMessageField
MFSDeviceField

Figure 37

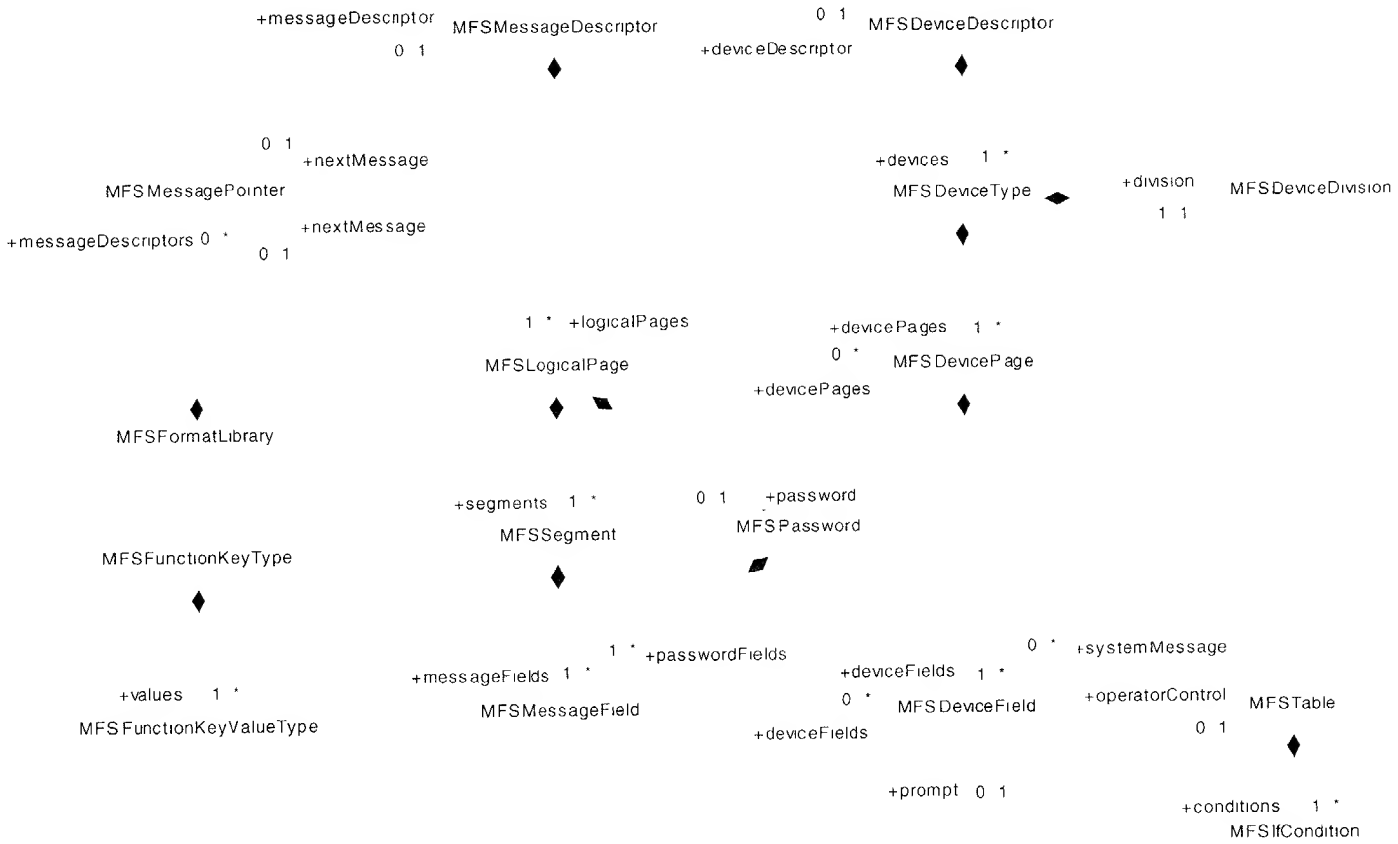
+messageDescriptor
0 1
MFSMessageDescriptor
0 1
+deviceDescriptor
MFSDeviceDescriptor
0 1
+nextMessage
MFSMessagePointer
+messageDescriptors 0 *
+nextMessage
0 1
+devices 1 *
MFSDeviceType
+division
1 1
MFSDeviceDivision
1 * +logicalPages
MFSLogicalPage
+devicePages 1 *
0 *
MFSDevicePage
+devicePages
MFSFormatLibrary
+segments 1 *
MFSSegment
0 1 +password
MFSPassword
MFSFunctionKeyType
1 * +passwordFields
+messageFields 1 *
MFSMessageField
0 * +systemMessage
+deviceFields 1 *
0 *
MFSDeviceField
+operatorControl
MFSTable
0 1
+deviceFields
+prompt 0 1
+values 1 *
MFSFunctionKeyValueType
+conditions 1 *
MFSIfCondition

Figure 38

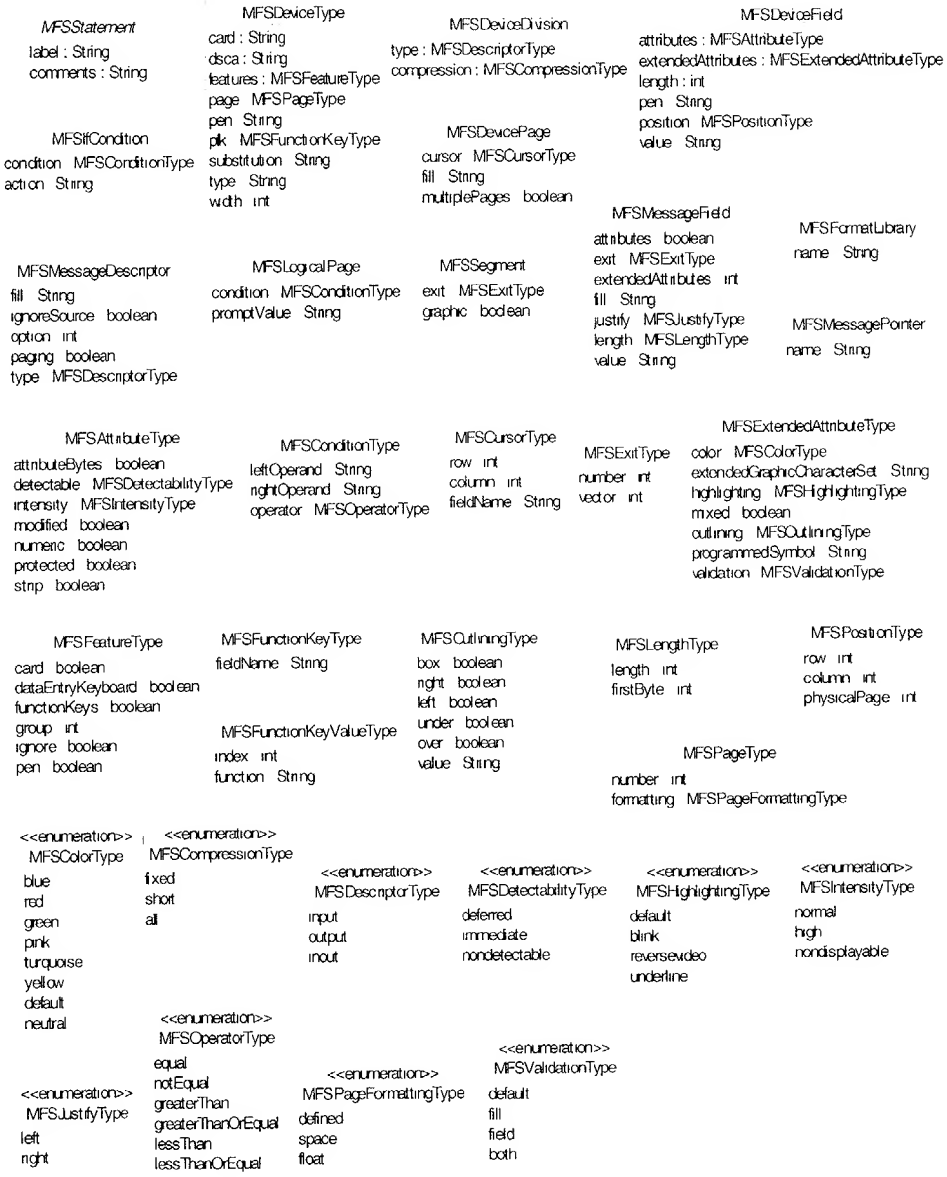
MFSStatement
label : String
comments : String
MFSDeviceType
card : String
dsca : String
features : MFSFeatureType
page MFSPageType
pen String
pfk MFSFunctionKeyType
substitution String
type String
width int
MFSDeviceDivision
type : MFSDescriptorType
compression : MFSCompressionType
MFSDeviceField
attributes : MFSAttributeType
extendedAttributes : MFSExtendedAttributeType
length : int
pen String
position MFSPositionType
value String
MFSIfCondition
condition MFSConditionType
action String
MFSDevicePage
cursor MFSCursorType
fill String
multiplePages boolean
MFSMessageField
attributes boolean
exit MFSExitType
extendedAttributes int
fill String
justify MFSJustifyType
length MFSLengthType
value String
MFSFormatLibrary
name String
MFSMessageDescriptor
fill String
ignoreSource boolean
option int
paging boolean
type MFSDescriptorType
MFSLogicalPage
condition MFSConditionType
promptValue String
MFSSegment
exit MFSExitType
graphic boolean
MFSMessagePointer
name String
MFSAttributeType
attributeBytes boolean
detectable MFSDetectabilityType
intensity MFSIntensityType
modified boolean
numeric boolean
protected boolean
skip boolean
MFSConditionType
leftOperand String
rightOperand String
operator MFSOperatorType
MFSCursorType
row int
column int
fieldName String
MFSExitType
number int
vector int
MFSExtendedAttributeType
color MFSColorType
extendedGraphicCharacterSet String
highlighting MFSHighlightingType
mixed boolean
outlining MFSOutliningType
programmedSymbol String
validation MFSValidationType
MFSFeatureType
card boolean
dataEntryKeyboard boolean
functionKeys boolean
group int
ignore boolean
pen boolean
MFSFunctionKeyType
fieldName String
MFSFunctionKeyValueType
index int
function String
MFSOutliningType
box boolean
right boolean
left boolean
under boolean
over boolean
value String
MFSLengthType
length int
firstByte int
MFSPositionType
row int
column int
physicalPage int
MFSPageType
number int
formatting MFSPageFormattingType
<<enumeration>>
MFSColorType
blue
red
green
pink
turquoise
yellow
default
neutral
<<enumeration>>
MFSCompressionType
fixed
short
all
<<enumeration>>
MFSDescriptorType
input
output
inout
<<enumeration>>
MFSDetectabilityType
deferred
immediate
nondetectable
<<enumeration>>
MFSHighlightingType
default
blink
reversevideo
underline
<<enumeration>>
MFSIntensityType
normal
high
nondisplayable
<<enumeration>>
MFSJustifyType
left
right
<<enumeration>>
MFSOperatorType
equal
notEqual
greaterThan
greaterThanOrEqual
lessThan
lessThanOrEqual
<<enumeration>>
MFSPageFormattingType
defined
space
float
<<enumeration>>
MFSValidationType
default
fill
field
both

Figure 39

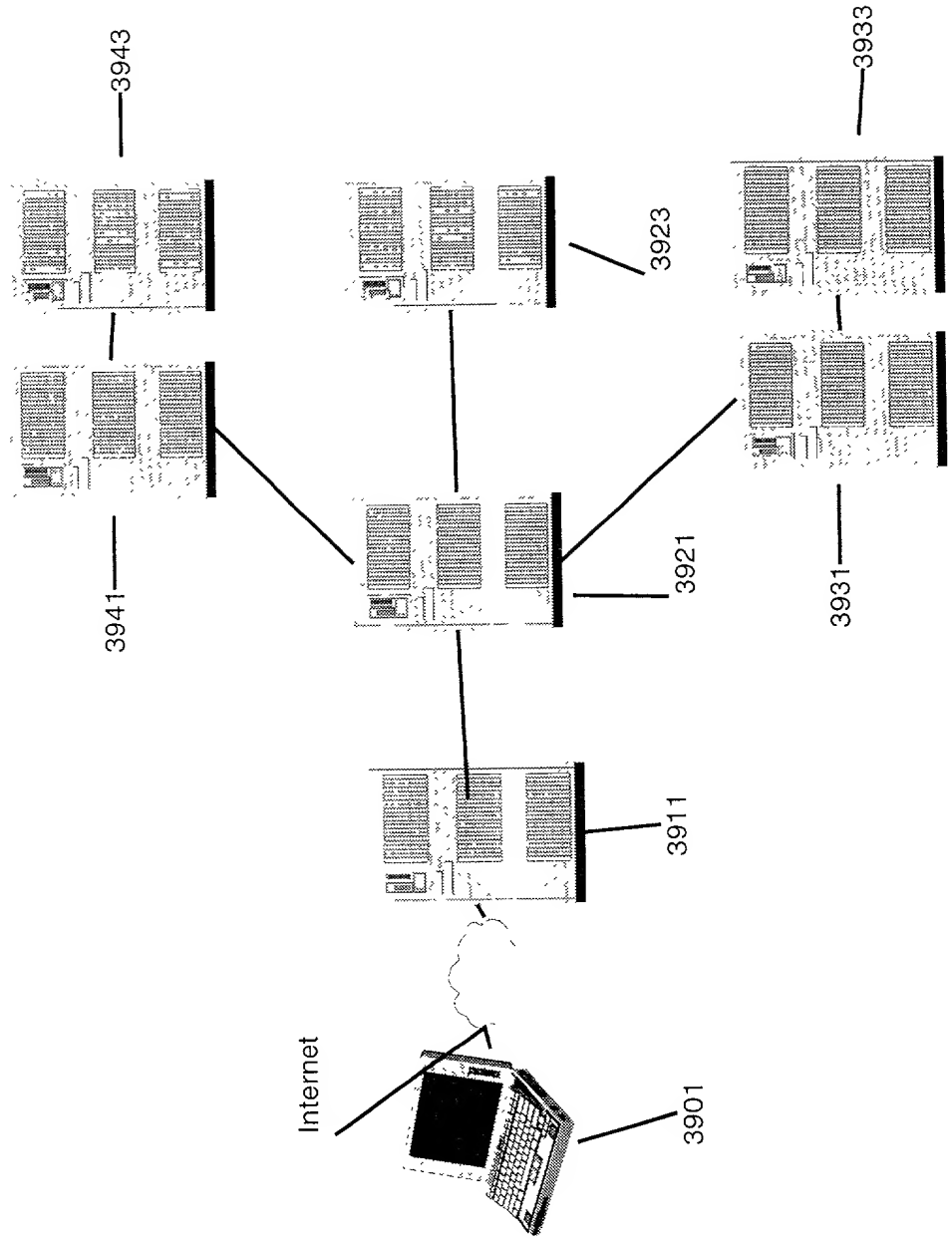

FIGURE 40

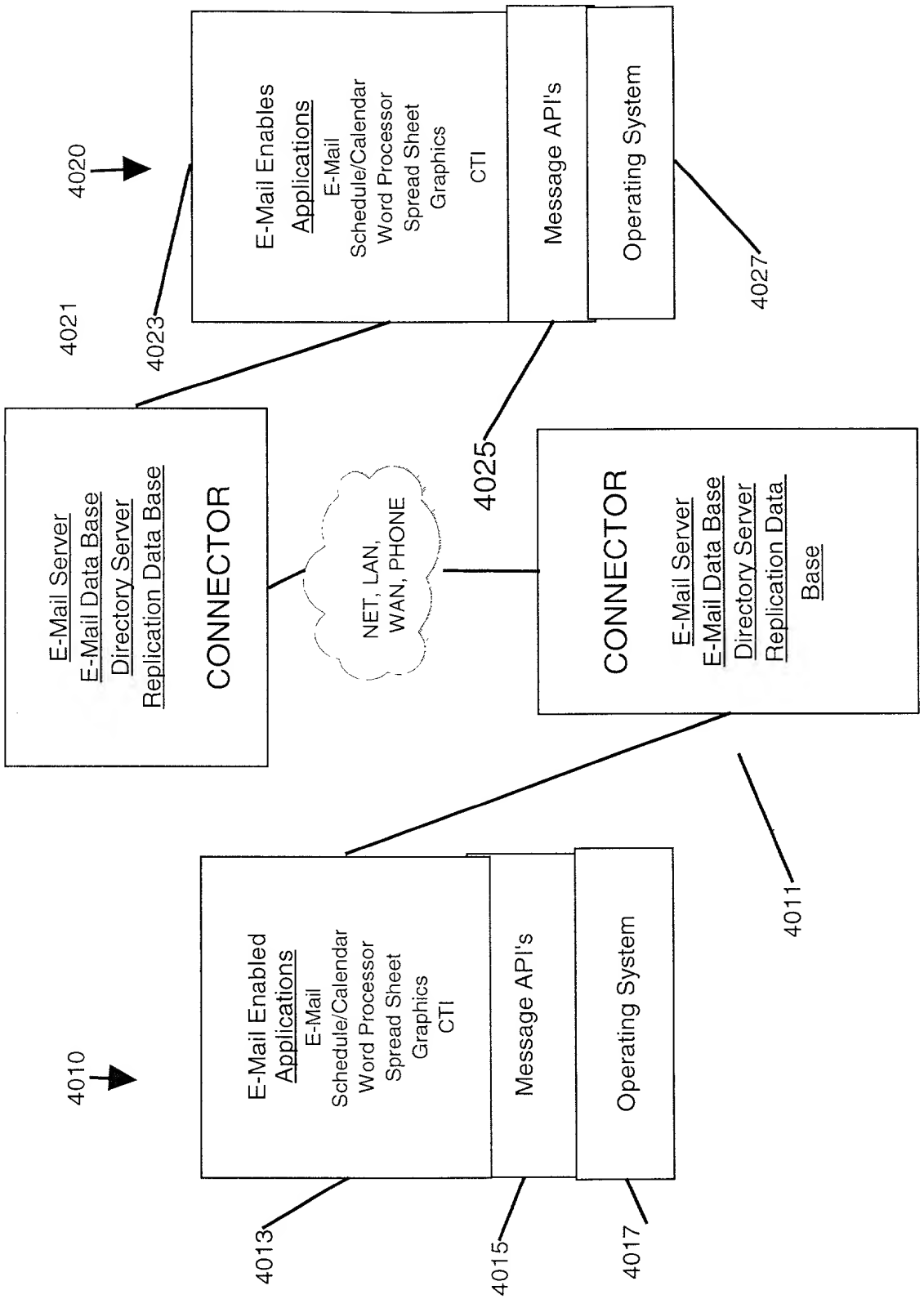
4020
4021
4023
E-Mail Enables Applications
E-Mail
Schedule/Calendar
Word Processor
Spread Sheet
Graphics
CTI
Message API's
Operating System
4027
E-Mail Server
E-Mail Data Base
Directory Server
Replication Data Base
CONNECTOR
NET, LAN, WAN, PHONE
4025
CONNECTOR
E-Mail Server
E-Mail Data Base
Directory Server
Replication Data Base
4011
4010
E-Mail Enabled Applications
E-Mail
Schedule/Calendar
Word Processor
Spread Sheet
Graphics
CTI
Message API's
Operating System
4013
4015
4017

FIGURE 41

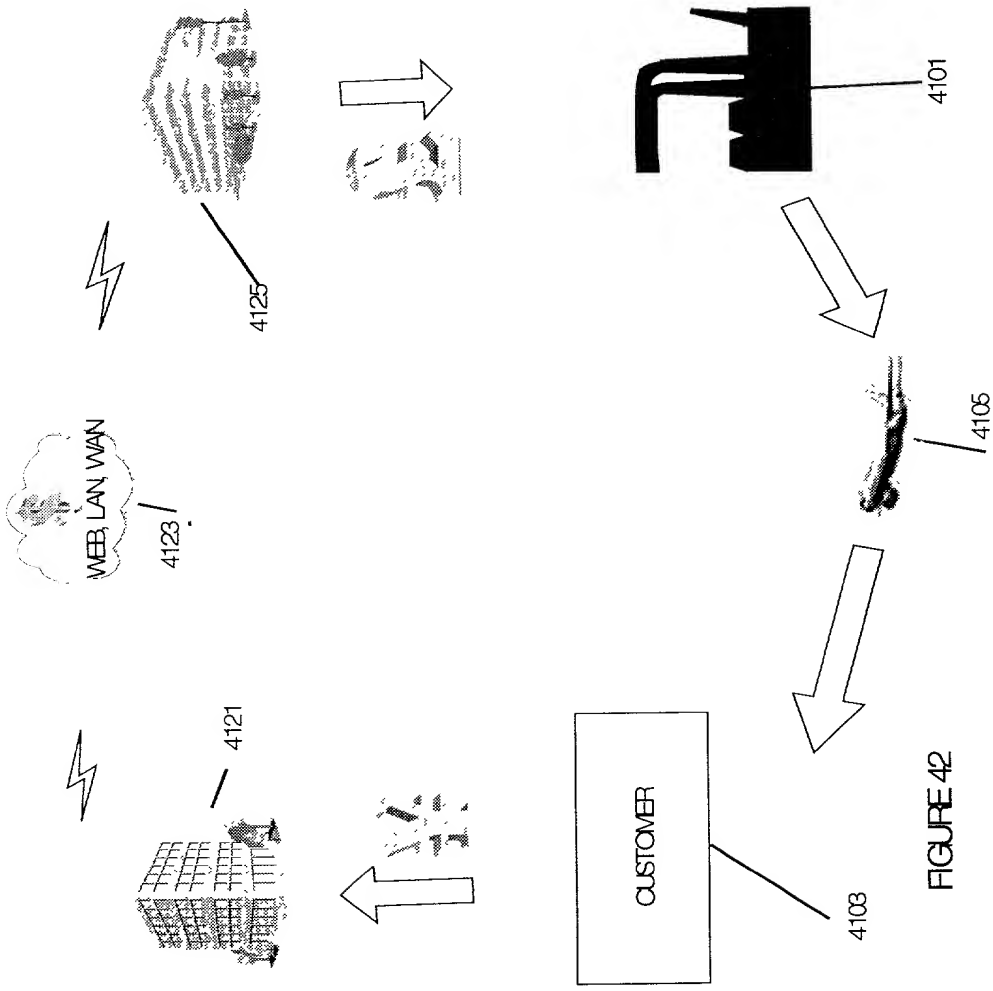

FIGURE 42